Upper Sweetwater Landscape Land Health Assessment

BLM Wyoming Wind River/ Big Horn Basin District , Lander Field Office

August 2015

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Table of Contents

Executive Summary 3

Chapter 1- Background 3

A. History and Process for Assessing Rangeland Health Standards 3

B. Public Involvement 4

C. Wyoming Rangeland Heath Standards 4

D. BLM Obligations Prescribed Under Rangeland Health Regulations 5

E. Assessment Criteria and Methods 6

Chapter 2- Geographic Landscape Environment and Resources Description 11

A. General 11

B. Climate 11

C. Soils and Ecological Sites 12

D. Upland Vegetation 12

E. Riparian/ Wetland Area 13

F. Livestock Grazing 14

G. Wildlife and Fisheries 14

H. Fire and Fuels 15

I. Special Status Species 16

J. Noxious/Invasive Species 17

Chapter 3 – Standard Assessment 18

STANDARD # 1 – Soil 18

Atlantic City Common Allotment – Standard #1 20

Beaver AMP Allotment – Standard #1 23

Big Pasture Allotment – Standard #1 25

Dishpan Butte Allotment – Standard #1 27

Flagg AMP Allotment – Standard #1 29

Level Meadows Allotment – Standard #1 31

McGraw Flat Common Allotment – Standard #1 33

Silver Creek Common Allotment – Standard #1 35

Small Private Allotments – Standard #1 37

STANDARD # 2 – Riparian 42

Atlantic City Common Allotment – Standard #2 45

Beaver AMP Allotment – Standard #2 48

Big Pasture Allotment – Standard #2 49
Dishpan Butte Allotment – Standard #2 51
Level Meadows Allotment – Standard #2 52
Silver Creek Common Allotment – Standard #2 53
Cottonwood Basin Allotment – Standard #2 56
Salisbury AMP Allotment – Standard #2 57
Other Allotments – Standard #2 58
STANDARD # 3 – Upland Vegetation 59
Atlantic City Common Allotment – Standard #3 61
Beaver AMP Allotment – Standard #3 64
Big Pasture Allotment – Standard #3 66
Dishpan Butte Allotment – Standard #3 69
Flagg AMP Allotment – Standard #3 71
Level Meadows Allotment – Standard #3 73
McGraw Flat Common Allotment – Standard #3 75
Silver Creek Common Allotment – Standard #3 77
Small Private Allotments – Standard #3 81
STANDARD #4 – Wildlife and Weeds 85
Noxious Weeds 89
Wild Horses 89
Habitat Conditions in the Upper Sweetwater Landscape 90
STANDARD #5 – Water Quality 93

Executive Summary

This document is a Wyoming Standards of Rangeland Health evaluation for the Upper Sweetwater Landscape (USL), Lander Field Office, Wind River/ Bighorn Basin district, Bureau of Land Management (BLM). Resource conditions are described for over 223,183 acres of public land. The evaluation pertains to 24 BLM grazing allotments and is based on an interdisciplinary team (IDT) field assessment conducted during the summer of 2012. Field data supports the following general observations about the Upper Sweetwater Landscape:

- With some localized exceptions, native uplands support healthy, diverse plant communities that allow for rangeland processes to function properly. Evidence of accelerated soil erosion is generally absent in upland areas.

- Key vegetation components necessary to support proper functioning riparian systems are still present in most areas.

- Approximately 40 percent of all upland acres and 56 percent of all riparian acres in the Upper Sweetwater Landscape meet Rangeland Health Standards. These acres are capable of supporting healthy soils, sustainable watersheds, and current commercial activities including livestock grazing. They are also currently providing healthy habitat for greater sage grouse and other wildlife species that rely on the landscape for habitat.

- Approximately 2,490 acres of riparian habitat and 133,400 acres of upland habitat do not meet the Rangeland Health Standards. A determination will identify causal factors at the time of permit renewal. Permit renewal Environmental Assessments will analyze alternatives/solutions to unmet standards that are determined to be caused by current livestock management.

- The fire cycle in the Upper Sweetwater Landscape has been altered by aggressive fire suppression and has created certain imbalances such as sagebrush dominance in sagebrush-grassland communities. While in some areas a healthy understory prevents this from creating a failure of the upland vegetation standard. Management actions going forward should be designed to address these issues wherever they occur.

Chapter 1- Background

A. History and Process for Assessing Rangeland Health Standards

The 1995 rangeland reform process modified the grazing regulations to address the fundamentals of rangeland health. In August 1997, the Standards for Healthy Rangeland and Guidelines for Livestock Grazing Management for the Public Lands Administered by the BLM in the State of

Wyoming were approved by the Wyoming State Director. The objectives of the rangeland heath regulation are to "promote healthy sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangeland to properly functioning conditions that are dependent upon productive, healthy public rangelands." The fundamentals of rangeland health combine the basic precepts or physical function and biological health with elements of law relating to water quality and plant and animal populations and communities. Initially the standards focused on livestock grazing on BLM-administered lands, but the standards were developed to apply to all uses and resources.

Assessing soils, water quality, and habitat, fisheries, and threatened and endangered species often does not correspond to allotment boundaries and is more logically evaluated at a larger scale. Instruction Memorandum IM No. 2001-079 transmitted the 4180 Manual Section and 4180-1 Rangeland Health Standards Handbook for use and provides guidance for conducting assessments and evaluations for ascertaining rangeland health on a watershed basis

Manual Transmittal Sheet Release 4-110 dated January 6, 2009 states that "evaluation of land health will occur primarily at the watershed level, *but can be completed at other spatial scales to properly evaluate the standard and/or the geographic area.*" In 2009, the Lander Field Office adopted an approach based on guidance provided in IM-2009-079 of delineating landscapes that are similar biologically and ecologically. The arrangement of watersheds within the Field Office was a major consideration when delineating landscapes. Factors such as ecological sites, annual precipitation, wildlife habitat, vegetation and soils are also considered. Lastly, the difference in grazing management seasons between landscapes were also a factor when delineating these geographic areas. Seasons which inform affect grazing management such as critical growth periods, and dormancy are dependent on variable conditions such as precipitation elevation and exposure of dominant parts of the landscape toward north, south, east or west.

B. Public Involvement

Scoping and public involvement for data collection on the BLM have been both formal and informal. An initial letter was sent to permittees and interested publics in March of 2012 inviting public participation in the field assessment. The Lander Field Office held an open house in April of 2013 to answer questions about the Standards and Guidelines Process and solicited additional input to the Upper Sweetwater Landscape Assessment. Other individual communications have been through telephone and field conversations. Cooperating agencies, permittees and interested parties were invited and encouraged to participate. See appendix 5 for a list of participants.

C. Wyoming Rangeland Heath Standards

The standards are the basis for evaluating rangeland conditions. The assessments evaluate the standards and are conducted by and interdisciplinary team with participation from permittees, cooperating state and federal agencies and other interested parties. Assessments are only conducted on BLM- administered public land, however interpretation of watershed health and water quality may reflect on all land ownerships within the area of analysis. The six standards are as follows:

Standard 1- Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

The standard is considered met where upland ground cover is appropriate for the ecological site, obvious signs of soil erosion are not apparent, and stream channels are stable or improving morphologically.

Standard 2 – Riparian and wetland vegetation have structural, age, and species diversity characteristic of the state of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

The standard is considered met where riparian/wetland habitat is rated in Proper Functioning Condition (PFC) or Functioning at Risk with an Upward Trend.

Standard 3 – Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

The standard is considered met if plant communities are appropriate for the ecological site and are sustaining themselves under existing conditions.

Standard 4 – Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

The standard is considered met if habitat needed to support wildlife species is being sustained under existing conditions.

Standard 5 –Water quality meets state standards.

The standard is considered unknown unless information provided by the Wyoming Department of Environmental Quality (DEQ) determines the status of a water body as impaired (not meeting) or is meeting its beneficial uses.

Standard 6 – Air quality meets state standards.

The standard is considered met or impaired based on information provided by the Wyoming DEQ.

D. BLM Obligations Prescribed Under Rangeland Health Regulations

If an assessment shows that a standard(s) is (are) not being met, factors contributing to the non-attainment are identified and management recommendations are developed so the standard may be attained. An Environmental Analysis which will examine grazing management in the landscape will help determine if current livestock grazing practices are contributing to non-attainment of the standards. If livestock are shown to be contributing to the non-attainment of a standard, as soon as practical but no later than the start of the next grazing season after the determination has been made, management practices will be implemented to ensure that significant progress is being made toward attainment of the standard(s).

E. Assessment Criteria and Methods

The Upper Sweetwater land health assessments were conducted in accordance with current BLM policy as defined in BLM Land Health manual 4180 as amended (January 16, 2009). BLM Handbook H-4180-1, Rangeland Health Standards provides the specific detail for implementation of the policies listed in Manual 4180. The achievement of a standard is determined by observing, measuring, and monitoring appropriate indicators. An indicator is a component of a system whose characteristics (e.g. presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. A range of monitoring data and techniques were utilized to evaluate the Upper Sweetwater Landscape. Some of these methods provide correlating quantitative data in which trends may be revealed, while others provide a more qualitative evaluation of rangeland conditions as they exist today. In order to supplement the more qualitative data set, additional monitoring data in the form of step point transects, soil stability testing, and long term condition and trend permanent plot monitoring have been evaluated and included to support the conclusions in this report. The methods, techniques, and guidance for the evaluation are found in the following technical references, manuals, and handbooks:

- TR 1734-6 “Interpreting Indicators of Rangeland Health”,
- TR 1737-15 “A User Guide to Assessing Proper Functioning Condition and The Supporting Science for Lotic Systems”, as well as
- TR 1737-16 related to Proper Functioning Condition on Lentic Systems.
- TR 1734-4 “Sampling Vegetation Attributes”,
- TR 1734-3 “Utilization Studies and Residual Measurements”,
- H-4423-1 “Wyoming Rangeland Monitoring Handbook”
- NRCS National Range and Pasture Handbook
- NRCS Ecological Site Descriptions
- NRCS Soil Survey of Fremont County, East Part and Dubois Area

Selection of Areas Used for Assessment Determinations

The Interpreting Indicators of Rangeland Health method was used to evaluate upland sites in which 17 separate soil, hydrologic, biological indicators are evaluated against a reference plant community. To determine the transect locations, BLM identified based on a variety of factors including but not limited to watershed, precipitation, soil type, vegetation, and allotment boundaries. GIS was then used to quantify the size and variability of ecological sites within the

landscape and within the allotments. Ecological sites that occupied most of the acres within grazing allotments were prioritized for sampling. Random points, representing approximately 10,000 acres, were then located within the ecological sites. Finally, the randomly chosen locations were moved to within an accessible distance from existing transportation routes.

Once in the field, soil test pits were dug at each of the transect locations to confirm whether the ecological sites were correctly mapped. Visual observations were also made by the interdisciplinary team (IDT) to confirm that the locations were representative of the larger landscape. The IDT selected these locations to ensure the transects were uniform over a large enough area in order to obtain adequate samples of quantitative data.

The Proper Functioning Condition (PFC) assessment method was used to evaluate riparian areas. Selected riparian areas and the associated uplands were observed and evaluated throughout the Landscape. A thorough survey of the area for riparian PFC had been conducted in the 1990s. The BLM IDT reevaluated approximately 50 percent of previously assessed PFC in the Upper Sweetwater Landscape during the 2012 field season. Riparian areas that showed bank stability concerns, or were rated as Functioning at Risk (FAR) in the last PFC assessment were prioritized over those that had been found to be in. The remaining riparian areas were observed informally in the field by the IDT. Before final conclusions were drawn, other BLM specialists with knowledge of riparian conditions within the allotments were consulted to better interpret actual conditions in these specific areas.

Permanent browse and long term monitoring transects were used to assess the condition of the shrub component on upland sites. These are scientific studies that measure attributes of shrub species that are important to wildlife for a variety of habitat and dietary needs. Permanent browse transects measure changes in shrub communities over time and may be located in areas where human influences such as grazing practices or brush treatments are known or suspected to have decreased browse availability in the past. They may also be located in areas of crucial winter range for shrub-dependent wildlife species.

Upland vegetation communities were also assessed using existing long term condition and trend (C&T) transects. These are long-term transects were typically established in the 1980's. Transect locations were selected in a manner similar to the Interpreting Indicator transect locations. Although GIS was not available for use in the 1980s, the IDTs located accessible key areas that were representative of the major ecological sites within the allotments. Most C&T transect within the Upper Sweetwater Landscape have been re-evaluated several times since being established.

Assessment Methods for Upland Sites

The Interpreting Indicators of Rangeland Health method of evaluating the Standards is comprised of a combination of qualitative and quantitative indicators designed to evaluate soil site stability, hydrologic function, and biotic integrity. Examples of these attributes include erosion indicators such as rills and pedestalled plants, hydrologic indicators such as ground cover, and biological indicators such as the relative presence or absence of key structural components in the plant community. Data and observations concerning the site's physical

integrity were recorded on Evaluation Sheets derived from "Interpreting Indicators of Rangeland Health", USDI, BLM Tech. Ref. 1734-6 (2000). Ecological site potential determinations were based on Historic Climax Plant Communities and corresponding stable states as described in Natural Resource Conservation Service (NRCS) Ecological Site Descriptions (ESDs). Finally, professional judgment and knowledge of the area were used to draw conclusions about land health when there were departures from exact stable state descriptions.

As part of the Interpreting Indicators method, the IDTs determined percent ground cover at transect locations by using 100 point step-point transects, ("Sampling Vegetation Attributes", USDI, BLM Tech. Ref. 1734-4, 1996). The step-point method involves recording observations along a paced (stepped) line at a specified number of paces, then at a specific point, such as a notch in the toe of a boot. A long steel pin is then used to determine what kinds of cover (bare ground, vegetation, gravel, stone, or plant litter) are encountered at ground level and/or in the plant canopy above the point.

The Interpreting Indicator method also includes soil stability and its resistance to erosion. Soil stability kits were used to obtain quantitative interpretations of soil stability. This method includes collecting soil samples and placing them in a sieve. The sieves are then lowered into deionized water with sample fragments being monitored and recorded at initial contact with water, 5 seconds and five min and after 5 dips. This method looks at the amount of the soil sample that is still intact at the time intervals. This method helps the ID team to determine the soils resistance to erosion, and the amount of organic matter in the soil.

C&T transects were used to determine trend in upland vegetation health and to provide additional quantitative data to compare with observations made during the Interpreting Indicators process. The most common type of C&T transects consist of ten permanently located two foot by five foot plots along a 1000' transect line. Frequency, density, production, composition, and percent cover of all plant species present are all collected when using this method. Changes in relative production and composition of key species are used to indicate the degree and nature of changes when comparing several years of C&T data. There are also permanent photo points at each plot and at each end of the transect. Change or lack of change in vegetation communities is observable when comparing current photos to photos taken in the past at these same photo points. ("H-4423-1 Monitoring Studies", BLM Manual Supplement 1984)

In order to assess suitability of upland range for terrestrial wildlife values, BLM also used browse transects to measure vegetation attributes that affect wildlife security and production. These attributes included the age and condition of sagebrush and other browse species. Permanent browse transects are conducted using the Line Intercept method, in which a measuring tape is stretched between two established points and the live shrub canopy encountered along the tape is recorded as to species and age class and measured to detect changes over time.

Assessment Methods for Riparian Sites

The primary method used in evaluating the standard for riparian health is through a qualitative assessment procedure called Proper Functioning Condition (PFC). This process evaluates

physical functioning characteristics of riparian/wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. A properly functioning riparian /wetland area will provide the following elements contained in the technical definition of PFC (TR1737-15 and TR1737-16):

Dissipate stream energy associated with high water flows, thereby reducing erosion and water quality
Filter sediment, capture bed load and aid floodplain development
Improve flood-water retention and ground water recharge
Develop root masses that stabilize stream banks against cutting action (TR 1737-15 1998)

It is important to note that the PFC assessment provides information on whether an area is physically functioning in a manner that allows maintenance or recovery of desired values (e.g., water retention, habitat for wildlife, or forage) over time. PFC assessments have been conducted in the area since the 1990s, with recent assessments occurring during field seasons 2009, 2010 2011 and 2012. In addition to PFC, photo-points have been used to document riparian condition.

The PFC assessment process requires a determination of upward, downward or not apparent trend. Riparian trend is determined by comparing the present situation with previous photos, studies, inventories, and any other documentation or professional knowledge existing prior to the PFC assessment. If information prior to the assessment is lacking, indicators of "apparent trend" may be deduced during the assessment process. Presence or absence of riparian/wetland species that correlate with soil moisture characteristics can be especially useful. However, care must be taken to relate these indicators to recent climatic conditions as well as management. If there is insufficient evidence to allow recognition of a trend toward PFC (upward) or away from PFC (downward), then the trend is considered to be "not apparent" (BLM, TR 1737-15, 1998, p20).

Water Quality Assessment

The Clean Water Act of 1987 (CWA), as amended, establishes the objective to restore and maintain the chemical, physical and biological integrity of our nation's surface waters

The U.S. Environmental Protection Agency (USEPA) is charged with administering the CWA. However, Section 101(b) of the CWA states that it is the policy of Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this Act. As such, the Wyoming Department of Environmental Quality, Water Quality Division (WDEQ/WQD) administers the Clean Water Act in Wyoming.

Similarly, the Federal Water Pollution Control Act requires BLM to comply with the requirements of the Clean Water Act, and ensure the control and abatement of water pollution. As part of its water quality program, the WDEQ monitors water quality, compiles and interprets these data, and lists all impaired water bodies that are in non-attainment of their designated uses (303(d) List). This data forms the basis for the decision making process in this document regarding the current status of water quality. BLM does not possess any current water quality

monitoring data for this area, therefore the data compiled by the WDEQ represents the best available information. Water bodies that are not listed on the 303(d) list are considered to be meeting the water quality standard, while those listed on the 303(d) list will not meet the water quality standard. Where soil and vegetation standards are not being met, water quality may be directly or indirectly impacted as a result; however, without additional monitoring data, the degree to which water quality has been impacted remains unknown.

Air Quality Assessments

Similar to water quality, the WDEQ has primacy over air quality within the State of Wyoming as recognized by the USEPA. There is one air quality monitoring station located on South Pass, but otherwise air quality data is limited in the Wind River Basin and the Lander Field Office. According to the WDEQ (Personal Communication with Darla Potter WYDEQ), Fremont County is in attainment of all national and state ambient air quality standards.

Chapter 2- Geographic Landscape Environment and Resources Description

A. General

The analysis area considered in this document is referred to as the Upper Sweetwater Landscape (USL). The landscape is comprised primarily of sagebrush-steppe vegetation, which is distributed across wide plateaus interspersed with mountainous relief. This area includes the foothills of the Wind River Mountains, the Sweetwater Canyon, some isolated western portions of the Granite Mountains and the long escarpment of the Beaver Rim. Elevations range from approximately 6,500 feet to 8,500 feet.

The USL is roughly that portion of the Sweetwater River watershed that lies between the South Pass area and the western end of the Beaver Rim. It also includes parts of the Little Wind River and Popo Agie watersheds that occupy northwest facing slopes of Beaver Rim. The southern boundary roughly follows the Sweetwater River; Beaver Rim forms the northern boundary, which then follows BLM grazing allotment boundaries down the face of the rim toward the southwest. The western boundary is at the USDA Shoshone National Forest/BLM boundary near South Pass, and the eastern boundary bisects the high, rolling plateau between Beaver Rim and the Sweetwater River at the boundary between the Big Pasture and the Granite Mountain Open BLM grazing allotments.

The analysis area encompasses approximately 279,853 acres. Most of the acreage lies within the NRCS 10-14 inch precipitation zone, although some acres in the foothills of the Wind River Mountains are in the 15-19 precipitation zone.

Land ownership in the Upper Sweetwater Landscape consists of approximately 80 percent federal lands, 14% percent private land, 6 percent state lands and National Forest. Federal ownership includes approximately 223,183 acres administered by the Bureau of Land Management. Land ownership patterns vary from small, 40 acre tracts of public lands to v mixtures of public and non-public lands (See Appendix 1- Surface Ownership Map).

Human population levels are very low with a few ranch houses and summer cabins, South Pass and Atlantic City are two historic mining towns within the USL. Improved roads are limited to dirt and graveled roads which are maintained by the county, federal agencies, and private parties. Public land use within the assessment area is generally related to historic mining, tourism of historic South Pass and immigrant trails, livestock grazing, and recreation.

B. Climate

Climate within the USL is semi-arid with precipitation ranging from 10-14 inches per year and a small portion of 15-19 inches per year. Wide fluctuations of precipitation often occur and result in more dry years than those with above average precipitation. Snow distribution at lower elevations is influenced by wind with drifts forming behind taller plants and topographic

features. Precipitation occurs in the form of snow and rain, with June being the wettest month for higher elevations and May the wettest month in the lower elevations.

The amount of precipitation in any particular location depends on topography, as precipitation increases with elevation. Some precipitation occurs as thunderstorms, occasionally accompanied by hail, with isolated high-intensity, short-duration thunderstorms occurring between June and September. Summer storms may generate more lightning strikes than precipitation.

This area is also characterized by periodic drought. The most recent drought events occurred from 2000 to 2009 and 2011 and 2012. Generally, the last spring frost occurs from May to June and first frost by the ended of August to mid-September.

The frost-free period (temperatures above 32 degrees F) varies from approximately 111 days at lower elevations to 48 days at higher elevations. However, frost may occur during any month of the year.

C. Soils and Ecological Sites

There are 5 general soil general soil map units within the USL (Soil Survey of Fremont County, East Part, July, 1993)). They consist of: Irigub- Gelkie- Hoodle Out Crop, Gelkie- Hoodle- Uhl, Countryman- Tiswoth- Iceslew- Absher, Forelle- Popshia- Blazon, and Rockriver- Bosler-Cargosen. The main limitations of these areas are low precipitation and short growing seasons. For complete soil descriptions consult the soil survey for Fremont County, East Part

The USL consists of twenty-four ecological site descriptions There is a divers set of soils and associated range sites in the study area. Based on soil mapping units, the ecological sites present in the area are predominantly shallow loamy 10 -14 inch precipitation, gravelly 10-14 inch precipitation, shallow sandy 10-14 inch precipitation, and loamy 10-14 inch precipitation. The dominant ecological sites all occur within the High Plains Southeast land resource unit.

Shallow loamy sites are predominantly found in the area nearest to Beaver Rim with some sandy and shallow sandy sites increasing with distance from the rim. Gravelly sites and course uplands increase with proximity to the South Pass area. Loamy and loamy overflow sites are typically found in the draws and drainages. Clayey sites are more common below Beaver Rim and wetland sites are limited to riparian areas.

D. Upland Vegetation

Observed upland vegetation is predominantly a sagebrush-grass community. Wyoming big sagebrush is the most common species of sagebrush, with basin, mountain, and black sagebrush the other principle types found in this area. Mountain shrubs, which include bitterbrush, snowberry, serviceberry, chokecherry, and mountain mahogany, occur rarely and are usually confined to snow catchment areas or draws in the higher elevations. Near South Pass there are also some forested plant communities which consist of isolated aspen stands or mixed aspen and coniferous forest.

Perennial grasses and grass like plants that currently occur on the uplands include bluebunch wheatgrass, mutton bluegrass, Idaho fescue, Sandberg bluegrass, western wheatgrass, threadleaf sedge, bottlebrush squirrel tail, green needle grass, and Indian rice grass. Common forb species include phlox, penstemon, hawksbeard, aster, buckwheat, onion, and milk-vetch. Annuals include limited amounts of cheatgrass.

E. Riparian/ Wetland Area

Riparian areas are the interfaces between terrestrial and aquatic ecosystems. As ecotones, they encompass sharp gradients of environmental factors, ecological processes, and plant communities (Gregory et.al., 1991). These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Typical riparian areas are associated with perennially and intermittently flowing streams or springs. Most ephemeral streams or washes that do not have vegetation dependent upon free water in the soil are not considered riparian habitat.

Riparian/wetland habitat makes up a relatively small percentage (3%) of the USL. These important communities are some of the most productive found on public lands. Their ecological significance far exceeds their limited physical area. Riparian and wetland areas are major contributors to ecosystem productivity and structural and biological diversity, particularly in drier climates (Elmore and Beschta 1987). They are important for recreation, wildlife habitat, water supply, cultural and historic values, as well as livestock production. Riparian areas provide food and shelter for the animal community and are critically important to birds, amphibians and other wildlife species. Riparian areas affect the quantity and quality of water for on-site and downstream water uses, such as irrigation, water for wildlife and livestock, and recreation. Healthy riparian areas also store water and reduce risk of flash floods. For riparian areas to provide these benefits, they must have the plant species diversity, structure, and abundance appropriate for the area.

The vegetation associated with these sites depends on whether moisture is available on a year round basis or if it is intermittent with the seasons or with precipitation events. Nebraska sedge or wetland sedges and spike rushes can be found on the wettest sites, along with tufted hair grass. Drier sites may have Baltic rush, timothy, Kentucky bluegrass, mat muhly, alkali sacaton or red top. Tree-dominated habitat such as cottonwood or willow occurs in strips, along perennial or ephemeral streams. Willow riparian shrublands occur as scattered individuals or as denser communities, on wet sites that are somewhat thermally protected along drainages.

The Upper Sweetwater Landscape is mostly in the Sweetwater River watershed but also includes portions of the Little Wind River and Popo Agie River watersheds. Riparian areas are more concentrated on the western side of the USL because of the numerous creeks and drainages coming off the high country in the Wind River Mountains and draining into the Sweetwater River or into Beaver Creek. The most prominent of these creeks are Willow Creek, Rock Creek and Strawberry Creek. On the eastern side of the USL, riparian areas are more likely to be found at springs and small subirrigated reaches within drainages, but Long Creek, which flows south from Beaver Rim into the Sweetwater in the Big Pasture, Long Creek, includes over twenty

miles of perennial stream and wet meadows in its main branch and tributaries. The Sweetwater River is a prominent feature in many of the grazing allotments in the USL. In some allotments, especially in the smaller allotments along the river, the riparian is limited to private land. This standard assessment deals exclusively with riparian areas that are found on BLM administered public land.

F. Livestock Grazing

There are 24 allotments permitted for grazing use on public lands in the analysis area. Appendix 2- Allotment Information (Table A) gives some basic information about each of these allotments and describes how they are sorted into three management categories.

Grazing use in the USL is primarily by cattle. Historical use in this area has shifted from predominantly sheep in the 1800s and early 1900s to mostly cattle since the late 1900s. The Taylor Grazing Act in 1934 began a process of creating allotments and developing range improvements. Fencing of allotments has been an ongoing, long-term process. Pasture fencing has occurred mostly on some of the larger allotments and on allotments with a low percentage of public land.

15 allotments and approximately 105,000 BLM acres within the USL received rangeland health assessments during the late 1990s. The grazing permits associated with these allotments were renewed under NEPA with appropriate actions designed to make progress toward meeting any standards that were not met at that time. Other allotments where assessments were not completed, nevertheless had data collected on them and management changes were made within existing permits to improve rangeland health.

In some instances, this current assessment will measure whether progress has been made toward meeting the standards, even if the standards are not met. While this report focuses on the attainment, or non-attainment of the standards, there is sufficient data to determine if progress has been made for some of the allotments. During the determination of causal factors and the selection of appropriate guidelines for livestock management, closer attention will be paid to the question of whether progress has been made.

G. Wildlife and Fisheries

The primary management objectives for wildlife and fish are to provide habitat adequate to support a natural diversity of species and to fulfill their life-cycle requirements, maintain habitat connectivity and barrier-free movement, and manage impacts to populations and their habitats resulting from BLM authorized activities. Management of various habitat types to obtain a diversity of vegetative species, cover, age classes, and structure is essential to maintain healthy wildlife and fish populations and their associated habitats. Hundreds of species of wildlife, including birds, mammals, reptiles, and amphibians are known or expected to occur within the Upper Sweetwater Landscape.

The plant communities/habitat types within the Upper Sweetwater Landscape have been described under sections E and G of this document. These habitat types vary greatly in their ability to support wildlife, depending on species composition, age classes, single species

dominance, horizontal and vertical structure, abundance, mosaic mix with other habitats, and proximity to features such as migration corridors and winter concentration areas (e.g. big game crucial winter range).

The USL provides both seasonal and year-long habitats for numerous wildlife species including big game, predators, small mammals, birds, amphibians and reptiles. Many of the species inhabiting the area are sagebrush-obligate birds and mammals, as sagebrush habitat is the most dominant habitat within the USL. Big game species such as pronghorn, mule deer, elk, and moose are commonly observed and raptors including ferruginous, red-tailed, northern harrier, and Swainson's hawks, golden eagles, prairie falcons, and burrowing and great horned owls are abundant in the USL. Other, non-game mammals commonly observed are coyotes, badger, cottontail and jackrabbits, ground squirrels, voles and mice. Songbirds are also common and vary by habitat type with sparrows, meadowlark and horned lark most often seen in sagebrush and saltbush areas and warblers, swallows, and flycatcher species observed in riparian habitats. Greater sage-grouse, chukar and gray partridge are common game birds found throughout the USL. Greater sage-grouse, a candidate species listed under the Endangered Species Act, is discussed further in the special status species section.

Wildlife diversity in upland habitats is significantly affected by the presence and condition of riparian areas as many species are dependent on both upland and riparian habitats to meet their habitat requirements. Riparian habitats are capable of supporting the greatest variety of birds and mammals due to the presence of water and the species and structural diversity of the plant community. Habitats with the lowest diversity of plants, cover, and structure include rock outcrops which occur frequently in the higher elevations within the area.

Several perennial streams within the USL support fish populations, although a considerable portion of each stream traverses private lands. The most common species of non-game fish present include creek chub, long-nose dace, sand shiner, fathead minnow, and long-nose sucker. Game fish such as rainbow and brook trout are found in Beaver Creek, Rock Creek, and the Sweetwater River whereas Little Beaver, Rock, Willow, Tweed, Mormon, Strawberry, Gilespie, and Long Creeks primarily support primarily brook trout populations. Riparian streamside vegetation comprised of appropriate species and quantities is necessary to provide bank stability, trap sediment, provide fish hiding cover and macro invertebrate habitat, and provide shade to help regulate water temperature fluctuation.

H. Fire and Fuels

Mountain sagebrush grasslands within this area are estimated to have an average fire return interval of approximately 80 years. Transitional shrub steppe within this range is dominated by Wyoming big sagebrush and black sagebrush, with an estimated average fire return interval of approximately 130 years due to sparser understory vegetation. However, Wyoming sagebrush stands adjacent to more robust mountain sagebrush communities may have a historic fire return interval closer to that of the higher elevation or wetter mountain sagebrush dominated sites.

Under historic conditions the higher elevation mountain sagebrush steppe across this range would consist of a mix of various sagebrush densities and herbaceous components based on the

differing seral states of each community. These plant communities range from sites primarily dominated by primarily herbaceous species such as grasses and forbs to dense shrub sites of 30% foliar cover or more. An analysis of mountain sagebrush sites within this area as a part of the Landfire Fire Regime Condition Class (FRCC) assessment, estimates these communities were composed of a mosaic of 5% early seral herbaceous dominated, 15% mid-seral with scattered sagebrush, 30% late seral with scattered sagebrush and 50% late seral with dense sagebrush cover. It is estimated that within the USL, mountain sagebrush communities are currently close to 100% late seral with varying percent foliar cover of shrubs. As such, there is moderate departure from historic conditions.

I. Special Status Species

Special status species include species listed or proposed for listing under the Endangered Species Act (ESA) and species designated internally as BLM sensitive by the BLM State Director. Actions/activities that could impact ESA-listed species require consultation with the US Fish and Wildlife Service (USFWS) as USFWS has responsibility of managing listed species to curtail population and habitat loss. Wyoming BLM-sensitive wildlife and plant species are to be managed such that the species and the habitat on which they depend are conserved and BLM authorized actions do not contribute to the need for listing of the species under the ESA.

The only known ESA-listed plant known to occur within the area is the desert yellowhead (*Yermo xanthocephalus*). Desert yellowhead has two known populations in the world and they both are in the Big Pasture Allotment within the USL. The plant is vulnerable to extinction from randomly occurring, catastrophic events, as well as from small-scale habitat degradation, due to its small population size and limited geographic range. Desert yellowhead has a low annual reproductive output there, increasing its risk of population loss or decline. Other potential threats to individual plants or the general population include plant trampling from animals or vehicle use, destruction or modification of habitat from energy development and mineral extraction, invasion of non-native and weedy plant species, and grazing by livestock and wild horses.

Suitable habitat exists for the ESA-listed Ute Ladies'-tresses however no plants or populations have been discovered on BLM lands in the Lander Field Office. Since the plants discovery in Wyoming in 1994, only four populations have been located and these populations all occur in southeastern Wyoming. Potential habitat exists within the USL along streams, rivers, and riparian area with sandy or loamy clay soils, however surveys have not been completed in suitable habitat. Primary threats to long term conservation to the species include the loss or alteration of habitat from commercial, recreational, scientific, and/or educational activities and excessive grazing of the plants.

The ESA-listed gray wolf and grizzly bear occurs within the area, particularly in habitats closer to the Shoshone National Forest. Several wolves have been sighted in the area, but no wolf packs have been identified yet. Grizzly bear sightings have been made within the USL the first, a lone male was observed in 2013. Since that time, additional sightings and reports of grizzly bears have made. . The Wyoming Game and Fish Department does not currently recognize the USL as

being occupied habitat since there are no established territories for these species, but advise that gray wolf and grizzly bear use could increase in the area.

The USL has habitat for or known populations of several BLM-sensitive wildlife species including sagebrush-grass obligate species of the mountain plover, ferruginous hawk, long-billed curlew, burrowing owl, sage thrasher, loggerhead shrike, Brewer's sparrow, sage sparrow, and greater sage-grouse. Riparian obligate BLM-sensitive wildlife species in the area include white-faced ibis, long-billed curlew, northern leopard frog, and great basin spadefoot. BLM-sensitive plants found in the area include meadow pussytoes, Cedar Rim thistle, Beaver Rim phlox, Rocky Mountain twinpod, Fremont bladderpod, and limber pine.

Greater sage-grouse, a BLM-sensitive species and candidate species for listing under ESA, are common in the USL. The vast majority of the USL is within priority greater sage-grouse habitat. In Wyoming, priority habitat equates to Core Area habitat as defined by the WY Governor's Executive Order (EO) 2015-4. Lands within greater sage-grouse Core Area are protected by a suite of management prescriptions such as authorized activity restrictions, seasonal protections, and project mitigation measures or required design features. In addition, lands are subject to disturbance and disruption thresholds in order to limit the loss or degradation of habitat. There are currently 17 active greater sage-grouse leks known to occur within the USL varying in size from 0 males to 63 males in 2014, a low population year. Due to the cyclical nature of greater sage-grouse and variability in conditions related to the survey (weather, time of day, number of times surveyed in a year, presence of other animals, etc.), the number of birds present on these leks can vary widely from year to year and even within a year. During peak population years, many of these leks have had over a hundred males in attendance during the breeding season.

J. Noxious/Invasive Species

There a large variety of weeds within the USL, some of which are declared noxious weeds by the State of Wyoming. Noxious weeds found within the landscape are Canada thistle, hoary cress, leafy spurge, musk thistle, Russian knapweed and spotted knapweed. Black henbane, an invasive species that has not been declared a noxious weed, is also of concern.

The Lander BLM works closely with the Fremont County Weed and Pest to control weeds on the public lands.

Chapter 3 – Standard Assessment

Standards of Healthy Rangeland reporting protocols require the assessment area to be mapped as polygons, based on whether or not the standards are met. The polygons are mapped based on ecological sites within grazing allotments. Variations of conditions within these sites are considered when generalizations are made in order to describe conditions over large areas. If a portion of an ecological site within a grazing allotment does not meet the Standards of Healthy Rangeland, then all acres within the site will be mapped as not meeting that standard. There are likely areas within the mapped polygons that will deviate from the identified standards conformance; however, the overall rating for each site is generally representative. This is a helpful tool for standardizing the way BLM reports and maps the Standards of Healthy Rangeland and does not always indicate the scale of management actions that may be applied according to the Guidelines.

STANDARD # 1 – Soil

Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

THIS MEANS THAT:
The hydrologic cycle will be supported for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly varied in Wyoming.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Water infiltration rates;
- Soil compaction;
- Erosion (rills, gullies, pedestals, capping);
- Soil micro-organisms;
- Vegetative cover (gully bottoms and slopes); and
- Bare ground and litter.

Standard #1 is evaluated throughout the USL on both upland and riparian soils. Upland soils were evaluated using the Interpreting Indicators of Rangeland Health, and riparian soils were evaluated as part of assessing the Proper Functioning Condition (PFC) of riparian areas.

Members of a BLM Interdisciplinary Team (IDT) completed the Interpreting Indicators of Rangeland Health Evaluation Forms and collected data during the 2012 field season. NRCS Ecological Site Guides describe expected conditions for each ecological site, including indicators such as soil stability, ground cover, vegetative type, and erosion potential.

Conclusions regarding the 17 Indicators are expressed in degrees of departure from expected conditions. Upland sites where soil stability and hydrologic function are found to be in the –none to slight- or –slight to moderate- ratings of departure from expected conditions for soils

stability and hydrologic function will usually meet the Standard. Sites that are rated as a -moderate- departure from expected conditions or exhibit evidence of extreme past erosion are subject to professional judgment depending on the factors influencing departure.

Over the past decade, drought has played a large role in soil stability and hydrologic function across the USL. One of the ongoing effects of this would be the reduction in the amount of litter produced and residual litter left for site stability and hydrologic function. At many transect locations litter was low to slightly below expected. When overall ground cover was adequate, the effects of drought on litter production were taken into account when determining a departure rating for that location.

For results by allotment pertaining to Standard #1, see Tables 1-1 through 1-29 along with the accompanying narrative and conclusions. The tables outline the findings of the Interpreting Indicators of Rangeland Health Evaluations, step-point transects and soil stability tests conducted by the IDT in the field. The first table under each allotment lists the observed current plant association and the qualitative ratings for soil site stability and hydrologic function at each transect. The second table lists ground cover percentages as measured by the step-point transects. The third table provides soil stability ratings from each transect location.

The transect locations in the tables below are identified by acronyms of the allotment name, a capital T, and a number specific to each transect within an allotment. For example, ACC T-1 is the first Interpreting Indicators/step point/soil stability transect conducted in the Atlantic City Common Allotment, and BA T-2 is the second transect conducted in the Beaver AMP Allotment.

Riparian soils were also included in the acreage figures for the soil standard. Riparian acres that meet standard #2 also meet standard #1 and riparian systems that do not meet standard #2 will also not meet standard #1. These sites have issues with stream bank instability and sediment movement. For more information on IDT conclusions regarding riparian health in the various grazing allotments, see Standard #2, Riparian.

Atlantic City Common Allotment – Standard #1

The three dominant ecological sites within the Atlantic City Common Allotment are Gravelly, Loamy and Shallow Loamy 10-14" Precipitation Zone Southeast. Six transects were used to evaluate uplands in the allotment.

Table 1-1: Upland Qualitative Assessment Summary (17 Indicators), Atlantic City Common Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Gravelly 10-14	ACC T-2	Perennial short grass/ Phlox/ Big sagebrush	Bluebunch Wheatgrass	Slight to Moderate	Slight to Moderate
Gravelly 10-14	ACC T-3	Big Sagebrush/ Perennial short grass	Bluebunch Wheatgrass	None to Slight	None to Slight
Gravelly 10-14	ACC T-5	Big Sagebrush/ Short grass	Bluebunch Wheatgrass	Slight to Moderate	Slight to Moderate
Loamy 10-14	ACC T-4	Shrub/ Perennial Grass	Rhizomatous Wheatgrass/ Needle-and-thread	None to Slight	None to Slight
Shallow Loamy 10-14	ACC T-1	Big Sagebrush/ Phlox	Bluebunch Wheatgrass/ Rhizomatous Wheatgrass	None to Slight	None to Slight
Shallow Loamy 10-14	ACC T-6	Big Sagebrush/ Perennial Grass	Bluebunch Wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate	Slight to Moderate

Bare ground, litter, gravel, stone, vegetative canopy cover, and total ground cover as measured by step-point transects are listed in the second table under each grazing allotment. Numbers in the ground cover tables are expressed in percentages.

Table 1-2: Ground Cover Data for the Atlantic City Common Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Gravelly 10-14	ACC T-2	28	10-15	10	10-15	8	0	54
Gravelly 10-14	ACC T-3	10	10-15	25	10-15	8	0	57
Gravelly 10-14	ACC T-5	18	10-15	11	10-15	24	0	47
Loamy 10-14	ACC T-4	4	20-30	31	25-35	2	1	62
Shallow Loamy 10-14	ACC T-1	11	40-60	6	15-25	36	0	47
Shallow Loamy 10-14	ACC T-6	14	40-60	13	15-25	10	5	58

*As described in Technical Guide IIB MLRA(34A) Range Site Descriptions

Table 1-3: Soil Stability: Atlantic City Common Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Soil Stability
Gravelly 10-14	ACC T-2	1.5	4+
Gravelly 10-14	ACC T-3	0	4+
Gravelly 10-14	ACC T-5	2.5	4+
Loamy 10-14	ACC T-4	1.3	5+
Shallow Loamy 10-14	ACC T-1	2.5	4+
Shallow Loamy 10-14	ACC T-6	1.3	4+

*As described in Technical Guide IIB MLRA(32 and 43B) Range Site Descriptions

Litter, gravel, stone, and vegetation combined provide ground cover that protects the soil from erosion. The Ecological Site Descriptions provide expected parameters for these sub-categories of ground cover. For ground cover to be adequate to protect the soil in a given ecological site, the amount of bare ground must also be within the expected parameters as described in the NRCS Ecological Site Descriptions.

Ground cover conditions on gravelly ecological sites in the Atlantic City Common Allotment vary. Transect ACC T-5 has only three percent more bare ground than expected, but Transect ACC T-2 has 13 percent more bare ground than expected and has less overall ground cover than required to protect the soil from erosion. A higher percentage of gravel on this site would be expected. On transect ACC T-3 vegetation and litter are more than adequate to protect the soil, and bare ground is well within acceptable limits. However, gravel amounts are also low at this transect. It appears the clumps of vegetation in the area of ACC T-2 and ACC T-3 have begun to capture windblown sediment – a small first step to rebuilding eroded soils. This newly deposited soil, perhaps obscuring some of the expected surface gravel, needs adequate protection from erosion provided by living plant canopy and litter.

Shallow loamy ecological sites in this allotment also vary. Transect ACC T-1 has less bare ground and litter than expected but it also has a higher percentage of gravel than expected. Transect ACC T-6 also has less bare ground than expected. However it is two percent low on litter. While more litter is desirable for this location, vegetation, gravel and stone together provide adequate ground cover to prevent erosion. Vegetation, primarily Mutton bluegrass, provides the majority of the ground cover.

Loamy ecological sites, as represented by ACC T-4, have very low bare ground compared to expected conditions. Both litter and vegetation provide more than adequate ground cover to protect the site from erosion.

Soil stability ratings at all transect locations are low, ranging from 0 to 2.5; well below the expected stability ratings of 4 to 5. However, the lack of active rilling, gullies, and active pedestalling are indicative of other stabilizing factors. In this case gravel has served to stabilize the soil surface from further erosion throughout much of this area.

Many of the soil surfaces in the area of the Atlantic City Common Allotment display an eroded gravelly surface. Topsoil loss and degradation due to above average water flow patterns, pedestalling and wind scouring has occurred across this allotment, probably beginning back in the mid-1800s. Vegetation such as bluebunch wheatgrass and Indian ricegrass would be the preferred sources to hold the soil in place, but gravel has become a main source of soil stability

on these sites when there is a lack of vegetative or litter cover. While gravel is not an ideal ground cover, it does protect the remaining soil from erosion.

The gravelly and shallow loamy sites do not meet the soil standard due to the loss of top soil and lack of soil stability. The indicators of soil stability and hydrologic function were rated none to slight or slight to moderate by the IDT, and they are likely protected from further erosion by the course, gravelly surface texture. However, they still do not meet the standard because the gravel present on the site indicates that soil has been lost and that significant erosion has occurred in the past. Signs of surface erosion such as terracettes and water flow patterns are still present in slight to moderately greater amounts than expected, however, litter and vegetative cover is increasing.

The loamy sites meet the soil standard as they have good vegetative ground cover, with limited amounts of bare ground. These sites showed limited signs of soil loss and had the expected desirable vegetation such as Idaho fescue, bluebunch wheatgrass, western wheatgrass present on the site. Soil stability is below expected for this site, however due to good hydrologic cover and limited observed soil movement these sites meet the standard.

While upland soils are stable, riparian soils within the Atlantic City Common Allotment are sometimes not. For more information on IDT conclusions regarding riparian health in the various grazing allotments, see Standard #2, Riparian.

RESOURCE CONDITIONS IN ATLANTIC CITY COMMON MEETING THE STANDARD?

YES Acres = 7,777	20%
NO Acres = 27,976	73%
Unknown Acres = 2628	7%

Beaver AMP Allotment – Standard #1

The dominant ecological sites within Beaver AMP are loamy and clayey 10-14". Subdominant sites within the allotment include igneous, shallow loamy, and course upland 10-14". Two interpreting indicator/step-point/soil stability transects were evaluated, one on each of the two dominant ecological sites. For greater detail regarding the kinds of information found in the tables below, please see the description of the Standard #1- Soils (page 15) in this section.

Table 1-4: Upland Qualitative Assessment Summary, Beaver AMP

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Loamy 10-14 SE	BA T-1	Black Sage/ Blue Grass	Rhizomatous wheatgrass/ Needle-and-thread	None to Slight	None to Slight
Clayey 10-14 E	BA T-2	Perennial Grass/ Mixed Shrub	Indian Ricegrass/ Rhizomatous wheatgrass or Perennial Grass/ Mixed Shrub	Slight to Moderate	Slight to Moderate

Table 1-5: Ground Cover Data: Beaver AMP

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Loamy 10-14 SE	BA T-1	16.7	0-20	25.5	50-90	5.8	1	51
Clayey 10-14 E	BA T-2	17.6	15-35	15.7	30-65	11.8	0	54.9

*As described in Technical Guide IIB MLRA(32 and 43B) Range Site Descriptions

Table 1-6: Soil Stability: Beaver AMP

Ecological Site	Transect Number	Average Soil Stability	Expected Soil Stability
Loamy 10-14 SE	BA T-1	4.3	4+
Clayey 10-14 E	BA T-2	2	4+

*As described in Technical Guide IIB MLRA(32 and 43B) Range Site Descriptions

The loamy ecological site on this allotment is not representative of a Loamy 15-19" Precipitation Zone Southeast Ecological Site as mapped. The IDT confirmed the loamy soils with a soil pit and concluded that the Loamy 10-14" Precipitation Zone Southeast Ecological Site would be a more appropriate comparison. The overall ground cover for the loamy site is adequate to protect the soils and there are no observable signs of accelerated erosion. There is less litter than expected, but other indicators were considered when evaluating the site. The site also exhibits signs of good soil stability and hydrologic function with very little departure from expected conditions. Therefore, the loamy ecological site within the Beaver AMP Allotment meets standard #1.

Excessive soil movement has not yet been observed on clayey ecological sites in the area, however, low average soil stability on the clayey site at transect BA T-2 is an indicator of high soil erosion potential. Some slight pedestalling is occurring in the interspaces. Wind scour,

Blowouts and depositional areas are occasionally present. Due to the low ratings of the soil stability and lack of stabilizing litter cover the clayey site does not meet standard #1.

The IDT did not run transects on the igneous, shallow loamy and course upland ecological sites in this allotment because they represent only a small percentage of the total upland acreage. But based on field observations, technical knowledge, location, ground cover and the limited use these sites receive they meet the standard.

While upland soils are stable, riparian soils within the Beaver AMP are sometimes not. For more information on IDT conclusions regarding riparian health in the various grazing allotments, see standard #2, riparian.

RESOURCE CONDITIONS IN BEAVER AMP MEETING THE STANDARD?

YES Acres = 6,885	77%
NO Acres = 1,238	14%
Unknown Acres= 835	9%

Big Pasture Allotment – Standard #1

The four dominant ecological sites on the Big Pasture Allotment are clayey, loamy, sandy and shallow loamy 10-14". Smaller ecological sites within Big Pasture are shallow sandy, and gravelly 10-14". The IDT evaluated six transects on the dominant ecological sites within the allotment. For greater detail regarding the kinds of information found in the tables below, please see the description of the Standard #1- Soils (page 15) in this section.

Table 1-7: Upland Qualitative Assessment Summary, Big Pasture Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Clayey 10-14 E	BP T-6	Perennial Grass/ Big Sagebrush	Indian Ricegrass/ Rhizomatous wheatgrass or Perennial Grass/ Mixed Shrub	None to Slight	None to Slight
Loamy 10-14 SE	BP T-1	Short grass/Big Sagebrush	Rhizomatous wheatgrass / Needle-and-thread	None to Slight	None to Slight
Loamy 10-14 SE	BP T-4	Short grass/Big Sagebrush	Rhizomatous wheatgrass / Needle-and-thread	Slight to Moderate	Slight to Moderate
Sandy 10-14 SE	BP T-3	Big Sagebrush/ Bluebunch Wheatgrass	Needle-and-thread/ Rhizomatous wheatgrass	None to Slight	None to Slight
Sandy 10-14 SE	BP T-5	Big Sagebrush/ Bluebunch Wheatgrass	Needle-and-thread/ Rhizomatous wheatgrass	None to Slight	None to Slight
Shallow Loamy 10-14 E	BP T-2	Perennial Grass/ Big Sagebrush	Bluebunch wheatgrass / Rhizomatous Wheatgrass	None to Slight	None to Slight

Table 1-8: Ground Cover Data: Big Pasture Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Clayey 10-14 E	BP T-6	17	15-35	20	30-65	5	0	58
Loamy 10-14 SE	BP T-1	16	20-30	24	25-35	0	0	60
Loamy 10-14 SE	BP T-4	25	20-30	25	25-35	6	0	44
Sandy 10-14 SE	BP T-3	16	20-30	21	25-35	3	0	60
Sandy 10-14 SE	BP T-5	15	20-30	17	25-35	18	1	49
Shallow Loamy 10-14 E	BP T-2	19	40-60	24	15-25	4	0	53

Table 1-9: Soil Stability: Big Pasture Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Soil Stability
Clayey 10-14 SE	BP T-6	3.3	4+
Loamy 10-14 SE	BP T-1	3.5	5+
Loamy 10-14 SE	BP T-4	4.5	5+
Sandy 10-14 SE	BP T-3	3	4+
Sandy 10-14 SE	BP T-5	4.5	4+
Shallow Loamy 10-14 E	BP T-2	4.1	4+

All five transects in Big Pasture exhibited stable soils with limited signs of rills, pedestals, terracettes, and bare ground. Wind scoured areas, blowouts and depositional areas were not apparent on the majority of these sites. Some pedestalling was noted at BP T-4 due to wind erosion, but these observations did not exceed what is expected for this site. Topsoil depths were as expected, indicating that the soils have been stable and adequately protected over time. Litter percentages, which could be attributed to long term drought conditions, and average soil stability ratings are slightly low overall. However, these departures are not sufficient to fail the soil standard. For these reasons, the majority of upland acres within Big Pasture meet the soil standard.

While upland soils are stable, riparian soils within the Big Pasture Allotment are not. These sites exhibit excessive stream bank instability and sediment movement. For more information on IDT conclusions regarding riparian health in the various grazing allotments, see standard #2, riparian.

RESOURCE CONDITIONS IN BIG PASTURE MEETING THE STANDARD?

YES Acres = 75,620 99%
NO Acres =474 1%
Unknown Acres = 0

Dishpan Butte Allotment – Standard #1

Dishpan Butte allotment is comprised of 3 major ecological sites including loamy, sandy and shallow sandy 10-14" with shallow loamy 10-14" being a minor ecological site within the allotment. Three transects were evaluated on these sites. The tables below summarize the findings.

Table 1-9: Upland Qualitative Assessment Summary, Dishpan Butte Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Shallow Sandy 10-14 SE	DB T-2	Big Sagebrush/ Needle-and-thread – Grass like	Mid-stature Bunchgrasses	Slight to Moderate	Slight to Moderate
Loamy 10-14SE	DB T-3	Big Sagebrush/ Mid Grass	Rhizomatous wheatgrass/ Needle-and-thread	None to Slight	Slight to Moderate
Sandy 10-14 SE	DB T-1	Big Sagebrush/ Grass Like	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate	Moderate

Table 1-10: Ground Cover Data: Dishpan Butte Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Shallow Sandy 10-14SE	DB T-2	26.5	40-60	15.7	15-25	1.9	0	55.8
Loamy 10-14 SE	DB T-3	28.7	20-30	23.8	25-35	1	0	46.5
Sandy 10-14 SE	DB T-1	29	20-30	13	25-35	7	0	51

Table 1-11 Soil Stability: Dishpan Butte Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Shallow Sandy 10-14 SE	DB T-2	3.1	3+
Loamy 10-14 SE	DB T-3	3.3	5+
Sandy 10-14 SE	DB T-1	3.6	4+

Both the shallow sandy and the loamy ecological sites on the Dishpan Butte Allotment have adequate ground cover and limited signs of erosion. Rills, water flow patterns, pedestals and terracettes are limited and match what is expected for these sites. Bare ground and litter are also within expected ranges. Transects DB T-2 and DB T-3 were rated as -none to slight- and –slight to moderate- departures from expected conditions on soil site stability and hydrologic function .

Transect DB T-3, exhibited a soil site stability rating of 3.3, considerably lower than the expected rating of 5+. Loamy soils in the allotment with vegetative cover appear very stable; however soils within the interspace are at risk. Although existing erosion indicators are only slight to moderately in excess of expected conditions, and soil stability data alone is not enough

to fail the standard, these soils are somewhat at risk for further erosion. Loamy ecological sites should be a priority for future monitoring in this allotment.

Soils on sandy ecological sites within the Dishpan Butte Allotment are less stable. At transect DB T-1, located on a sandy ecological site, soil stability and hydrologic function exhibit a moderate departure from expected conditions. Litter is low at only 13 percent, compared to expected litter of 25 to 35 percent. Bare ground is at 30 percent, which on the high end of the expected range of 20 to 30 percent. Pedestalling, terracettes, gullies, wind scoured blow outs and depositional area, litter movement, soil surface, and compaction, all exhibit limited departures from expected conditions, but excessive water flow patterns on the site indicate that the combination of low litter and relatively high bare ground are contributing to moderately unstable soils and impaired hydrologic function. The thread-leaf sedge that is abundant on this site produces less litter compared to cool season bunchgrasses, such as Needle-and-thread grass, which would be present in the natural historic plant community. With lowered plant production due to recent and ongoing drought, litter cover is further reduced. For these reasons sandy ecological sites in the Dishpan Butte Allotment do not meet the soil standard.

Riparian ecological sites in the allotment will not meet the soil standard because the associated riparian areas do not meet PFC. For more information about riparian standard conformance in the Dishpan Butte Allotment, see standard #2, riparian.

The shallow sandy, loamy and shallow loamy sites meet the soil standard. Soil stability on several subdominant sites in the southern portion of the allotment are unknown as there is no data and insufficient observation to support any conclusions.

RESOURCE CONDITIONS IN DISHPAN BUTTE MEETING THE STANDARD?

YES Acres = 9704	64%
NO Acres = 4905	32%
Unknown Acres = 646	4%

Flagg AMP Allotment – Standard #1

The Flagg AMP Allotment is largely made up of shallow loamy and sandy ecological 10-14" sites. Two transects were evaluated on these ecological sites. Gravelly, loamy and shallow sandy 10-14" are sub-dominant sites within the allotment. The findings of transects are summarized in the tables below.

Table 1-12: Upland Qualitative Assessment Summary, Flagg AMP Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Shallow Loamy 10-14 SE	FA T-1	Big Sagebrush / Short Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	None to Slight	Slight to Moderate
Sandy 10-14	FA T-2	Big Sagebrush/ Short Grass and Grass like	Needle-and-thread/ Rhizomatous wheatgrass	None to Slight	Slight to Moderate

Table 1-13: Ground Cover Data: Flagg AMP Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Shallow Loamy 10-14 SE	FA T-1	19.4	40-60	15.5	15-20	5.8	0	59.2
Sandy 10-14	FA T-2	16	20-30	25	25-35	1	0	60

*As described in Technical Guide IIB MLRA(34A) Range Site Descriptions

Table 1-14: Soil Stability: Flagg AMP Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Shallow Loamy 10-14 SE	FA T-1	2.6	4+
Sandy 10-14 SE	FA T-2	1.8	4+

Ground cover is higher than expected for both the shallow loamy and the sandy ecological sites in this allotment. Vegetative cover has increased the past 40 years. Litter cover is on the low end of the expected range for both ecological sites. Rills, bare ground, gullies, wind scoured areas, blowouts and depositional areas, and litter movement showed a limited departure from expected conditions. There are indications of soil erosion on the shallow loamy sites in the form of pedestalling and terracettes, however, these pedestals and terracettes appear to be evidence of past erosion. Quantitative condition and trend data (see tables 3-10 and 3-11) shows that overall upland conditions have improved in this allotment and current, ongoing erosion was observed to be limited. Average soil site stability on both transects is considerably lower than expected, and this makes the allotment a high priority for continued monitoring, but this alone is not enough to fail the standard. Therefore, the shallow loamy and sandy ecological sites on the Flagg AMP Allotment meet the soil standard.

RESOURCE CONDITIONS IN FLAGG AMP MEETING THE STANDARD?
YES Acres = 11,463 100%
NO Acres = 0
Unknown = 0

Level Meadows Allotment – Standard #1

Level Meadows is comprised predominantly of course upland and shallow loamy 15-19" ecological sites. Loamy, igneous and wetland 15-19" ecological sites are subdominant for this allotment. There were two interpreting indicator/step-point/soil stability transects located within the allotment, one on each of the predominant ecological sites.

Table 1-15: Upland Qualitative Assessment Summary, Level Meadows

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Course Upland 15-19	LM T-1	Big Sagebrush/ Mid Stature Grasses	Columbia Needlegrass/ Spike fescue	None to Slight	None to Slight
Shallow Igneous 15-19 W	LM T-2	Shortgrass/ Forb	Bitterbrush/ Bluebunch wheatgrass	Slight to Moderate	Slight to Moderate

Table 1-16: Ground Cover Data: Level Meadows

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Course Upland 15-19	LM T-1	8	0-20	21	50-90	2	1	68
Shallow Igneous 15-19 W	LM T-2	12	0-30	19	15-20	16	5	49

Table 1-17: Soil Stability: Level Meadows

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Course Upland 15-19	LM T-1	5.5	4+
Shallow Igneous 15-19 W	LM T-2	3.6	3.5

*As described in Technical Guide IIB MLRA (43B) Range Site Descriptions

Upland cover on course upland sites in the Level Meadows allotment is adequate. Bare ground is within the expected amounts. Litter is low, but the amount of vegetation cover is adequate to compensate. Although drought may be a factor in this, ongoing monitoring is recommended. There are no apparent signs of rills, water flow patterns, pedestals, terracettes or other signs of soil erosion. LM T-1 is above the 4+ expected for soil stability rating. For these reason the soils on the course upland sites appear to be stable and therefore meet the soil standard.

LM T-2 was expected to be on a shallow loamy site, however after verifying the soils, it was determined to be a shallow igneous site and therefor compared to the shallow igneous ecological site description. This site has some apparent water flow patterns along with pedestals and terracettes, with some moderate movement of litter. There are no apparent rills or gullies and the soil stability is slightly above expected. For these reasons this site meets the soil standard.

The subdominant sites including wetlands and riparian areas meet the soil standard because they appear similar to the dominant sites in appearance and use patterns. Riparian ecological sites meet the standard as they had increased soil stability and good vegetative cover.

RESOURCE CONDITIONS IN LEVEL MEADOWS MEETING THE STANDARD?
YES Acres = 3,250 100%
NO Acres = 0
Unknown = 0

McGraw Flat Common Allotment – Standard #1

Clayey and Shallow Loamy 10-14" are the dominant ecological sites within this allotment, with loamy, shallow sandy 10-14" being the subdominant. Two interpreting indicator transects were located in the allotment, one on each of the predominant ecological sites.

Table 1-18: Upland Qualitative Assessment Summary, McGraw Flat Common Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Clayey 10-14 E	MFC T-1	Sagebrush/ Short grass	Bluebunch Wheatgrass	Slight to Moderate	Moderate
Shallow Loamy 10-14 E	MFC T-2	Sagebrush/ Mid stature grasses	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	None to Slight	Slight to Moderate

Table 1-19: Ground Cover Data: McGraw Flat Common Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Clayey 10-14 E	MFC T-1	30.7	15-35	20.8	30-63	2	1	45.5
Shallow Loamy 10-14 E	MFC T-2	28	15-45	23	25-65	4	1	44

*As described in Technical Guide IIB MLRA(32) Range Site Descriptions

Table 1-20: Soil Stability: McGraw Flat Common Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Clayey 10-14 E	MFC T-1	2.33	3+
Shallow Loamy 10-14 E	MFC T-2	3	3+

Although ground cover is adequate on clayey sites within the allotment, litter is low and the soil exhibits excessive water flow patterns that are more numerous and extensive than expected. Deposition and cut areas are common, rills and pedestaling are active, and wind scoured, blowouts, and depositional areas are common. The soil stability is lower than expected for this site. Although the overall A horizon appears to be intact at 2 inches, extensive water flow patterns are indicative of potential soil loss. For the above reasons the clayey sites within the allotment do not meet the soil standard.

Ground cover is also adequate on shallow loamy sites but litter is a little bit low. There is some evidence of minor soil erosion, but water flow patterns are stable and short. There is some pedestalling that appears to be healing; however, the healing pedestals are in a fragile state. Soil samples taken from areas of bare, unprotected soil directly on the pedestals had a stability rating of only 1, compared to the overall average soil stability rating of 3, which is expected for the site. This low rating indicates an increased potential for soil loss and pedestalled areas should be monitored in the future. However, overall indicators are that soils are stable and hydrologic function is intact. Therefore shallow loamy ecological sites in McGraw Flat Common Allotment meet the soil standard.

RESOURCE CONDITIONS IN MCGRAW FLAT COMMON MEETING THE STANDARD?

YES Acres = 6,881	59%
NO Acres = 4,324	38%
Unknown = 427	3%

Silver Creek Common Allotment – Standard #1

The primary ecological sites within the Silver Creek Common Allotment are gravelly, loamy, shallow igneous, and shallow loamy 10-14". The secondary ecological sites are sandy, loamy overflow and wetlands 10-14". The interpreting indicator evaluations were conducted at five locations, one each on gravelly, loamy and shallow igneous sites, and two on shallow loamy sites.

Table 1-24: Upland Qualitative Assessment Summary, Silver Creek Common Allotment

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Gravelly 10-14 SE	SC T-4	Sagebrush / Short Grass/Phlox	Bluebunch Wheatgrass	Moderate	Moderate
Loamy 10-14 SE	SC T-2	Sagebrush / Short Grass/Phlox	Rhizomatous wheatgrass/ Needle-and-thread	Slight to Moderate	Slight to Moderate
Shallow Igneous 10-14 W	SC T-5	Black Sage/ Perennial Grass	Bitterbrush/ Rhizomatous wheatgrass	None to Slight	None to Slight
Shallow Loamy 10-14 SE	SC T-1	Black Sagebrush/ grasslike	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Moderate	Moderate
Shallow Loamy 10-14 SE	SC T-3	Short Grass/ Sagebrush	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate	Moderate

Table 1-25: Ground Cover Data: Silver Creek Common Allotment

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Gravelly 10-14 SE	SC T-4	16	10-14	9	10-15	21	0	54
Loamy10-14 SE	SC T-2	15	20-30	14	25-35	6	0	65
Shallow Igneous 10-14 W	SC T-5	5	20-50	12	5-20	28	1	54
Shallow Loamy 10-14 SE	SC T-1	26	10-30	14	30-70	2	0	58
Shallow Loamy 10-14 SE	SC T-3	15	10-30	6	30-70	21	3	56

Table 1-26: Soil Stability: Silver Creek Common Allotment

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Gravelly 10-14 SE	SC T-4	1.6	4+
Loamy10-14 SE	SC T-2	2.67	5+
Shallow Igneous 10-14 W	SC T-5	3.8	2.5+
Shallow Loamy 10-14 SE	SC T-1	1.3	4+
Shallow Loamy 10-14 SE	SC T-3	3.5	4+

Bare ground is slightly high on the gravelly site and litter is slightly low. Ground cover on shallow loamy ecological sites was adequate, but litter was very low. There are signs of pedestalling and terracettes, soil surface loss and degradation, wind scoured blowouts and depositional areas on both these sites. Hydrologic function is impaired because plant community composition is skewed toward low-stature and low-vigor grasses that do not adequately facilitate water infiltration. Soil stability is considerably low compared to what is expected for the sites, although there is some variation between the two transects on the shallow loamy sites. A large portion of this allotment has high amounts of exposed gravel where past soil erosion has occurred and there is a high potential for further soil erosion due to low soil stability. (See table 1-26 for further details.) For these reasons these sites do not meet the soil standard.

The loamy site shows signs of active pedestalling with soil surface loss occurring. Hydrologic function is lacking due to the shift in plant community that is dominated by short stature grasses and phlox, which does not adequately facilitate water infiltration. Soil stability is greatly reduced to a 2.67 soil stability average from the 5+ that would be expected. For these reasons the loamy site will not meet the soil standard.

While the sandy and loamy overflow sites were not evaluated independently, based on field observations these sites are similar in ground cover, soil stability, hydrologic function and plant community composition to most of the other ecological sites on the allotment. Therefore, the sandy and the loamy overflow sites are not met.

The shallow igneous sites are the healthiest on the allotment in terms of soil stability and hydrologic function. They have limited amounts of bare ground, and less evidence of erosion. There is some evidence of minor water flow patterns but they are stable and short. There are also some light active pedestals on this site. Soil stability is high. For these reasons shallow igneous sites on the Silver Creek Allotment meet the soil standard.

Riparian soils were also included in the acreage figures for the soil standard. Riparian acres that meet standard #2 meet standard #1 and riparian systems that do not meet standard #2 will also not meet standard #1. These sites have issues with stream bank instability and sediment movement. For more information on IDT conclusions regarding riparian health in the various grazing allotments, see Standard #2, Riparian.

RESOURCE CONDITIONS IN SILVER CREEK MEETING THE STANDARD?

YES Acres = 4,399 14%
NO Acres = 21,127 69%
Unknown= 5,024 16%

Small Private Allotments – Standard #1

The small private allotments stretch the length of the Upper Sweetwater Landscape. There are a large variety of ecological sites and precipitation zones. These allotments are largely intermixed with private lands. Due to the small amount of public land within these allotments, the determination of whether the soil standard is met or not will be for all the public land within the allotment. There were 16 allotments that were assessed.

As with the larger allotments, transect numbers identify the allotment by using the first letter of each word within the allotment name.

The majority of these allotments meet the soil standard. Allotments that do not meet the soil standard will be discussed individually below.

Table 1-27: Upland Qualitative Assessment Summary, Small Private Allotments

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Soil Site Stability	Hydrologic Function
Corse Upland 15-19 E	French George Crossing FGC T-1	Big Sagebrush/ Perennial Grass	Columbia Needlegrass/ Spikefescue or Idaho fescue/ mixed shrub	Moderate	Moderate
Gravelly 10-14 SE	Atlantic City Lower ACL T-1	Big Sagebrush/ Perennial Grass	Bluebunch Wheatgrass	Moderate	Moderate
Gravelly 10-14 SE	Atlantic City Upper ACU T-1	Big Sagebrush/ Perennial Grass	Bluebunch Wheatgrass	Slight to Moderate	Slight to Moderate
Loamy 10-14 SE	Lower Ellis Ranch LER T-1	Big Sagebrush/ Perennial Grass	Rhizomatous wheatgrass/ Needle-and-thread	Moderate	Slight to Moderate
Loamy 15-19 E	Ellis Upper Beaver EUB T-1	Big Sagebrush/ Perennial Grass	Columbia Needlegrass/ Spikefescue or Idaho fescue/ mixed shrub	None to Slight	None to Slight
Sandy 10-14	Myers Fenced MF T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	None to Slight	None to Slight
Sandy 10-14	Whitlock Fenced WF T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate	Slight to Moderate
Sandy 10-14 SE	Flagg Individual FI T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	Moderate	Slight to Moderate
Sandy 10-14 SE	Trent and Home T&H T-1	Big Sagebrush/ Grasslike	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate	Slight to Moderate

Sandy 10-14 SE	Upper Ellis Ranch UER T-1	Big Sagebrush/ Shortgrass	Needle-and-thread/ Rhizomatous wheatgrass	Moderate	Moderate
Shallow Loamy 10-14	Long Creek LC T-1	Big Sagebrush/ Perennial Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	None to Slight	None to Slight
Shallow Loamy 10-14 SE	Salisbury AMP SA T-1	Perennial Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	None to Slight	None to Slight
Shallow Loamy 10-14 SE	McGraw Flat Individual MFI T-1	Sagebrush/ Shortgrass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate	Slight to Moderate
Shallow Loamy 10-14 SE	Auer Ranch AR T-1	Black Sage/ Perennial Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate	Slight to Moderate
Shallow Sandy 10-14	Cottonwood Basin CB T-1	Big Sagebrush/ Perennial Grass	Mid-stature Bunchgrasses	None to Slight	Slight to Moderate
Shallow Sandy 10-14 SE	Hay Meadow HM T-1	Big Sagebrush/ Perennial Grass	Mid-stature Bunchgrasses	None to Slight	None to Slight

Table 1-28: Ground Cover Data: Small Private Allotments

Ecological Site	Transect Number	Bare Ground	Expected Bare Ground	Litter	Expected Litter	Gravel	Stone	Vegetation
Corse Upland 15-19 E	FGC T-1	13	0-20	15	50-90	13	0	59
Gravelly 10-14 SE	ACL T-1	14.7	10-15	11.8	10-15	31.4	0	42.2
Gravelly 10-14 SE	ACU T-1	5.5	10-15	13.6	10-15	30.9	0	50
Loamy 10-14 SE	LER T-1	32.7	20-30	18.8	25-35	2	0	46.5
Loamy 15-19 E	EUB T-1	2.8	0-20	33.3	50-90	2	0	62
Sandy 10-14	MFI T-1	15.6	20-30	15.6	25-35	1.9	0	66.6
Sandy 10-14	T&H T-1	21.1	20-30	17.3	25-35	1.9	0	59.6
Sandy 10-14	WF T-1	20.6	20-30	18.6	25-35	2.6	0	57.8
Sandy 10-14 SE	FI T-1	27	20-30	28	25-35	0	0	45
Sandy 10-14 SE	UER T-1	28.1	20-30	21.3	25-35	3.8	0	46.6
Shallow Loamy 10-14 SE	LC T-1	12.6	40-60	11.6	15-25	16.5	0	61
Shallow Loamy 10-14 SE	SA T-1	21	40-60	9	15-25	18	4	48
Shallow Loamy 10-14 SE	MFI T-1	15.8	40-60	22.8	15-25	5	0	56.4
Shallow Loamy 10-14 SE	AR T-1	3.8	40-60	8.5	15-25	16	5.7	66
Shallow Sandy 10-14	CB T-1	20.9	40-60	29	15-20	9.1	0	41
Shallow Sandy 10-14 SE	HM T-1	19.8	40-60	16.8	15-20	4.9	0	58.4

Table 1-29: Soil Stability: Small Private Allotments

Ecological Site	Transect Number	Average Soil Stability	Expected Site Stability
Corse Upland 15-19 E	FGC T-1	3.8	4+
Gravelly 10-14	ACL T-1	1.8	2.5
Gravelly 10-14	ACU T-1	4	2.5
Loamy 10-14 SE	LER T-1	3	5+
Loamy 15-19 E	EUB T-1	5.67	4+
Sandy 10-14	FI T-1	2	4+
Sandy 10-14	MF T-1	2.66	4+
Sandy 10-14	T&H T-1	2.16	4+
Sandy 10-14	WF T-1	2.83	4+
Sandy 10-14 SE	UER T-1	1.8	4+
Shallow Loamy 10-14	LC T-1	2.8	4+
Shallow Loamy 10-14 SE	SA T-1	5.6	4+
Shallow Loamy 10-14 SE	MFI T-1	3.8	3+
Shallow Loamy 10-14 SE	AR T-1	3.33	4+
Shallow Sandy 10-14	CB T-1	4.83	3+
Shallow Sandy 10-14 SE	HM T-1	4	3+

In the Atlantic City Lower Allotment, transect ACL T-1 exhibits signs of water flow patterns with active pedestalling and terracettes. Plant species that increase water infiltration are moderately reduced. Plant litter is being displaced and soil stability is reduced within the allotment. Atlantic City Lower has limited rills, gullies, bare ground, wind scoured, blowouts, and/or depositional areas. These appear to be signs of past erosion that are recovering.

Transect LER T-1 in the Lower Ellis Ranch Allotment has a higher amount of bare ground than expected and a lower amount of litter reducing soil site stability. Water flow patterns are numerous and extensive with active rill formation at infrequent intervals. Wind scoured areas, blowout, and/or depositional areas are occasionally present. Pedestalling is moderately active, with occasional root exposure.

The Flagg Individual Allotment, as seen with transect FI T-1 has water flow patterns with some instability, slight active pedestalling, occasional wind scoured blowouts and/or depositional areas. Smaller class sizes of litter are being moved. Soil site stability is significantly reduced from what is expected.

In the Trent and Home Place Allotment, THP T-1 shows that the soils have a loss of water infiltration due to plant community composition. Soil stability is decreased to 2.16 from the expected 4+. Soil deposition can be seen around individual sagebrush plants.

In the Upper Ellis Ranch Allotment, transect UER T-1 exhibits water flow patterns and active pedestals and terracettes in plant interspaces. Soil site stability has been significantly reduced. Smaller classes of litter are being moved around obstructions and in depressions.

These five allotments do not meet standard #1 due to lack of adequate ground cover, signs of erosion or impaired hydrologic function and low soil stability.

RESOURCE CONDITIONS IN SMALL PRIVATE ALLOTMENTS MEETING THE STANDARD?

YES Acres = 23,057	91%
NO Acres = 2,143	9%

STANDARD # 2 – Riparian

Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

THIS MEANS THAT:
Wyoming has highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or wide spread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Erosion and deposition rate
- Channel morphology and flood plain function
- Channel succession and erosion cycle
- Vegetative cover
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.)
- Bank stability
- Woody debris and in stream cover
- Bare ground and litter

Proper Functioning Condition assessments were conducted on numerous streams within the USL. These streams are divided into lengths with similar physical characteristics that are referred to as “segments” or “reaches.” Approximately 38 segments/reaches of riparian habitat were assessed for this PFC. One of five possible ratings was assigned to each stream reach and wetland area:

- Proper Function Condition (PFC) = Meeting Rangeland Health Standard #2
- Functioning at Risk, Upward Trend (FARU) = Meeting Rangeland Health Standard #2
- Functioning at Risk, Trend not Apparent (FARN) = Not Meeting Rangeland Health
- Standard #2
- Function at Risk, Downward Trend (FARD) = Not Meeting Rangeland Health Standard #2
- Non Functioning (NF) = Not Meeting Rangeland Health Standard #2

The majority of the riparian habitats within the USL are perennial streams, and flow continuously. The other major type of riparian system in the landscape is intermittent, only flowing at certain times of the year when they receive water from springs or from some surface

source such as melting snow. Wet meadows can also be found throughout the USL often constituting true wetlands.

Most of the initial PFC baseline assessments were completed in 1994. The 2012 IDT was able to reassess about 50% of the total PFC in the USL. Because bank stability was a major concern in the 1994 readings, the IDT chose to re-evaluate those reaches that had bank stability issues in the first assessment However, new information such as permittee monitoring and ongoing professional observations in the field was discussed when reaching final conclusions.

When looking at the perennial and intermittent systems, the IDT was looking for, and would expect to see, systems that have:

- beaver dams that are active and stable,
- stream sinuosity appropriate for the gradient
- appropriate width to depth ratio
- gradients that are in balance with the landscape
- a riparian area that has widened or achieved potential extent
- diverse age class and composition of riparian vegetation
- vegetation that is able to withstand high water flow events
- riparian areas that have high vigor, plant communities that have an adequate source of large or woody material
- flood plains and channel characteristics that are adequate to dissipate energy
- point bars that are vegetated
- appropriate lateral stream movement
- vertically stable stream beds
- streams that are in balance with the water and sediment being supplied by the watershed.

On the meadow systems the IDT would expect to see:

- wetlands that are saturated at or near the surface, with fluctuations of water levels remaining somewhat constant
- an area that is widening or has achieved potential extent
- a stable upland watershed
- riparian wetland plants
- absence of head cutting
- diverse age class on riparian vegetation
- vegetation composition that is able to withstand high water flow events
- riparian vegetation that has high vigor
- vegetation that is adequate to dissipate energy from high flow events
- absence of frost heaving or abnormal hydrologic heaving
- favorable microsite conditions
- absence of chemicals that affect plant productivity
- geologic structure that is capable of restricting water percolation
- a system that is in balance with upland water and sediment being supplied by the watershed.

Streams and wet meadows where all or part of these expected healthy conditions are not present may be rated functioning at risk or non-functioning in the PFC process. A riparian area that is functioning at risk but exhibits an upward trend meets the standard. However riparian areas that are functioning at risk with a stable, downward, or undetermined trend do not meet the standard. The following tables 2-1 through 2-8 give information about 2012 PFC ratings on reaches, springs, or reservoirs for grazing allotments where riparian areas are present on BLM administered public land. The accompanying narrative describes riparian conditions on areas that do not meet the standard in greater detail.

Atlantic City Common Allotment – Standard #2

Perennial streams are the primary type of riparian system in the Atlantic City Common Allotment. There were 12 systems that were reassessed within the allotment. Atlantic City Common Allotment grazing permittees began cooperative monitoring in the spring and fall on several of the reaches on Little Beaver, Slaughterhouse Gulch, Little Hermit, Willow, and Rock Creeks in 2004. Data and information collected during cooperative monitoring, including stubble height measurements, willow growth and utilization, and repeated photo points, was useful for establishing trend on those reaches. Permittee monitoring locations are good indicators of change, but may not necessarily be representative of a larger reach. The IDT evaluated the monitoring data from the permittees and made some general conclusions and determinations.

Permittee monitoring helped demonstrate an upward trend on some of the creeks in the Atlantic City Common Allotment. Rock Creek showed signs of bank cutting in 2004, however, 2013 monitoring photos show that some of the banks have sloughed off and point bars are revegetating with riparian obligate species. Water flows have decreased over the past 9 years and resulting in new channelized system within the old channel. The channels exhibit a natural sinuosity that is in balance with the landscape. Little Hermit Gulch has seen an increase of willows and beaver activity. Beaver activity has resulted in addition water storage at the point of the green line transect. Willow Creek photo points show bank sloughing that is revegetating and increasing bank stability. Slaughter House Gulch has vigorous riparian vegetation that could protect the banks and stabilize the soil in a high flow event. The lower reach of Slaughter House Gulch has good sinuosity to reduce energy in the system.

The following table summarizes what is known about riparian conditions in the Atlantic City Common Allotment. For each assessment area the table gives stream names and types, reach identification numbers assigned during the PFC process, the estimated acreage of riparian soils associated with the reach, date assessed and existing vegetative community. The last two columns on the table are broad groupings of two categories of PFC ratings. In the first category are ratings that indicate that the riparian area is meeting the standard: Proper Functioning Condition (PFC) and Functioning at Risk (FAR) with an upward trend. In the second category are ratings that indicate that the riparian area is not meeting the Standard: Non-Functioning, (NF) and Functioning at Risk (FAR) with a static, downward or non-apparent trend.

2-1: PFC Atlantic City Common Allotment

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Big Atlantic Gulch	Perennial	.78/ 11.76	10180006735-01-**S1**	8/29/12	Willow, Sedge, Rush	X	
Big Atlantic Gulch	Perennial	.5/18.59	10180006735-02-**S2**	8/29/12	Willow, Sedge, Rush		X
Big Hermit Gulch	Perennial	.75/12.6	10180006739-03-**S3**	7/31/12	Willow, Sedge, Rush	X	
Horace Gulch	Perennial	.85/15.5	10180006734-02-**S2**	7/31/12	Willow, Sedge, Rush		X
Little Atlantic Gulch	Perennial	.72/13	10180006736-02-**S2**	7/25/12	Willow, Sedge, Rush	X	
Little Beaver Creek	Perennial	3.32/40.27	10180006727-03-**S1**	7/31/12	Willow, Sedge, Rush		X
Little Hermit Gulch	Perennial	.28/2.6	10180006741-01-**S1**	7/31/12	Willow, Sedge, Rush	X	
Long Gulch	Perennial	.8/5.8	10180006745-02-**S2**	7/25/12	Sedge, Rush Tufted Hairgrass, Willow		X
Slaughter House	Perennial	.63/7.58	10180006742-02-**S2**	7/24/12	Sedge, Rush Tufted Hair Grass	X	
Willow Creek	Perennial	.5/20.6	10180006584-04-**S4**	8/1/12	Willow, Sedge, Rush	X	
Willow Creek	Perennial	.5/22.21	10180006534-05-**S5**	8/1/12	Willow Sedge, Rush	X	
Willow Creek	Perennial	.5/9.18	10180006584-06-**S6**	8/1/12	Willow, Sedge, Rush		X

Big Atlantic Gulch reach S2 is Functioning at Risk with a downward trend. The IDT felt that this segment is unable to reach its full extent in width. Active mining in the stream channel has influenced natural sinuosity and width to depth ratios. Beaver dams have been built and blown out over the years with some down-cutting occurring on the beaver dams. Sediment being transported downstream has kept this system in a constant state of imbalance.

The upper stretch of Big Hermit Gulch is rated as Functioning at Risk with a downward trend. The downward trend may be attributed to the road crossing that seems to be contributing to head cutting. The upper stretch is marked with several old beaver dams and old abandoned mine dams and has not widened to reach its potential extent. The lower portion is functioning at risk with an upward trend. The lower stretch has several active beaver dams and a healthy almost

impenetrable willow stand. The overall system, Big Hermit Gulch S3, continues to function at risk with an upward trend.

Horace Gulch has no active beaver dams and several blown out beaver dams. The overall riparian area is drying out. Upland species are invading the riparian system. Head cuts are cutting back through the system and moving the creek vertically, down-cutting and incising the creek. This reach of Horace Gulch is Functioning at Risk with a downward trend.

Little Beaver Creek at S1 is Functioning at Risk with a downward trend. It has no clear or defined channel throughout most of the reach and is subirrigated; therefore there is limited bank sloughing. Head cuts on the lower portion of the reach indicate active down-cutting and vertical movement in the system. Riparian vegetation in the lower portion of this reach is not adequate to protect soils in high flow events. Permittee and ID team monitoring on the upper portion of this reach indicates that Little Beaver Creek has seen an increase in the young willow component since 1994, with not much new growth since 2004. Little Beaver Creek has good stabilizing ground cover and the banks are stable, but grasses and shrubs are lacking vigor. The lower portion of Little Beaver Creek was determined to be at risk due to head cuts. These head cuts put this upper reach of Little Beaver Creek at risk.

Long Gulch had two segments. S-1, not represented in the table, is an ephemeral draw. The beginning of S-1 is a blown out reservoir that breached and deposited large amounts of sand and gravel. There is no riparian vegetation, on reach S-1. S-1 also has lost its potential to have riparian vegetation. This reach was entirely dependent on the intact reservoir to support hydrologic function. Based on the current potential for this segment it will no longer be assessed for proper functioning condition. S-2 is a perennial segment. This system appears unstable with hummocks and vertical and horizontal head cuts. The system currently supports desirable herbaceous species although not in the expected abundance. There are a few willows lower on the reach; however there is a lack of age class diversity among the woody species. Reach number S2 of Long Gulch is rated Functioning at Risk with a downward trend.

Willow Creek S-6 has several active and blown out beaver dams. The base of the stream is well below the base of the riparian area. The base level of the stream has fallen 4-6 ft. below soil level, and may be too deep to repair through beaver activity. The sinuosity, width to depth ratio and overall potential riparian width has been influenced by active mining, becoming channelized. Sloughing banks and blowout areas are susceptible to rapid erosion. There are healthy mature willow communities along the reach, but the overall condition of this reach is Functioning at Risk with a downward trend.

RESOURCE CONDITIONS IN ATLANTIC CITY COMMON MEET THE STANDARD?
YES Riparian Acres = 1136 61%
NO Riparian Acres = 740 39%
Unknown Riparian Acres = 0

Beaver AMP Allotment – Standard #2

The majority of the systems that were reassessed in the Beaver AMP Allotment are intermittent, with one perennial system. In 2012 four stream segments were reassessed in the allotment.

2-2: PFC Beaver AMP Allotment

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Meadow Gulch	Perennial	.47/1.4	10180006759-01-**S1**	8/15/12	Willow, Sedge, Rush		X
Meadow Gulch	Intermittent	.51/2.3	10180006759-02-**S2**	8/15/12	Upland Spp.		X
Meadow Gulch	Intermittent	.66/6	10180006759-02-**S3**	8/15/12	Upland Spp.	X	
Jackson Spring	Perennial	.2/2.98	10180006760-0-**S1**	8/15/12	Willow, Sedge, Rush		X

On Meadow Gulch reach S1, riparian vegetation is dying and is only present in the old channel. A combination of lack of water, invasive upland species, and a lack of woody species has left this area unable to dissipate hydrologic energy. Several head cuts can be found along this reach. It is Functioning at Risk with a downward trend.

Meadow Gulch S2 was also found to be Functioning at Risk with a downward trend. It is shrinking due to dewatering of the system. Riparian vegetation is limited to hummocks and the old stream channel. Upland vegetation is encroaching into the riparian area. Due to poor vegetative health and lack of root mass in the existing vegetative community, the vegetation does not provide enough protection to withstand flood events and protect from further head cutting. Vertical stability has been lost as head cuts erode through hydric soils down to bed rock.

Jackson Springs reach S1 is divided into two parts because the reach is partially protected inside an exclosure. The riparian area outside of the exclosure appears to be drying and shrinking. There is not an adequate amount of vigorous vegetative cover to protect stream banks and dissipate energy. There are also several head cuts. Inside the small exclosure the riparian has recovered nicely. Plants are vigorous and provide adequate bank protection. Jackson Spring is Functioning at Risk with no apparent trend.

RESOURCE CONDITIONS IN BEAVER AMP MEET THE STANDARD?
YES Riparian Acres = 13 10%
NO Riparian Acres = 118 90%
Unknown Riparian Acres = 0

Big Pasture Allotment – Standard #2

Perennial and intermittent stream types are the dominant riparian systems in Big Pasture. Long Creek and its various tributaries make up the majority of these.

2-3: PFC Big Pasture Allotment

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Elk Horn Spring Draw	Perennial	.5/.35	10180006717-01-**S18**	6/26/12	Upland Spp.		X
West Fork Long Creek	Perennial	1.5/	10180006716-10-**S7**	6/26/12	Sedge/ Rush		X
West Fork Long Creek	Perennial	1.1/6.7	10180006718-09-**S8**	6/26/12	Upland Spp.		X
West Fork Long Creek	Perennial	2.1/	10180006716-08-**S9**	6/20/12	Sedge/ Rush	X	
West Fork Long Creek	Perennial	1.9/	10180006716-07-**S10**	6/20/12	Sedge/ Rush	X	
West Fork Long Creek	Intermittent	1/	10180006716-06-**S11**	6/26/12	Upland Spp.		X

The Elk Horn Spring Draw S18 riparian system lacks sinuosity and the width depth ratio is not in balance within the system. Riparian species are confined to the channel and lack the ability to protect stream banks in high flow events. Vegetation present on the flood plain is not indicative of riparian hydrology. The lower segment sub irrigates a meadow complex where there is active head cutting throughout, indicating poor vertical stability. Elk Horn Spring Draw was rated Functioning at Risk with a downward trend.

Reach S7 on the West Fork of Long Creek has changed from an intermittent stream to a perennial stream because of an increased water flow associated with oil field production. The oil field production water is of inadequate quality to support riparian vegetation and has resulted in some plant mortality on native sedge and rush species. There are no deep-rooted perennial riparian plants, rocks or course woody plant materials to dissipate water flow energy associated with the artificially high flow. This reach is Functioning at Risk with a downward trend.

Reach S8 on the West Fork of Long Creek is Functioning at Risk with a stable trend. It has two segments. The upstream portion has live water in the stream channel. The banks are vegetated with sedges but there is active bank sheering and sloughing. Vegetation lacks vigor, diversity, and young plant recruitment along this segment and is incapable of withstanding high flow events. The downstream portion is a narrow canyon with steep side hills. Riparian species are in isolated patches between bedrock. This system is vertically stable due to having a streambed of

bedrock. Cheatgrass, a shallow-rooted annual grass, is encroaching on the uplands of the canyon, increasing runoff and sediment in the riparian system.

S11 of the West Fork of Long Creek is Functioning at Risk with a downward trend. The flood plain is dominated by upland species. Riparian vegetation is confined to the bottom of the drainage and is lacking vigor. This system appears to be vertically stable, but lacks deep-rooted vegetation to withstand high flow events.

There are some stream reaches in this allotment where PFC has not been assessed. Past monitoring data and historical knowledge along with recent field observations were used to estimate a PFC rating for these riparian. Riparian areas within the riparian pastures have improved and are rated as Functioning at Risk with an Upward Trend.

RESOURCE CONDITIONS IN BIG PASTURE MEET THE STANDARD?

YES Riparian Acres = 190	29%
NO Riparian Acres = 474	71%
Unknown Riparian Acres = 0	

Dishpan Butte Allotment – Standard #2

The Dishpan Butte Allotment contains very few riparian areas. Antelope Creek is an ephemeral drainage created by snow collected alongside an adjacent snow fence.

2-4: PFC Dishpan Butte

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Antelope Creek	Ephemeral	.30/3	10180006714-01-**S22**	6/12/12	Redtop, POA Spp		X

Antelope Creek would likely be a non-riparian system if it were not fed by snow drifts created by the highway snow fence. The artificially high water flow due to the drifted snow is more than this system can naturally handle. There is excessive soil movement and head cutting in this system because water flow is not consistent enough to grow deep-rooted riparian vegetation, but is large enough to erode the channel during spring snow melt. It is Functioning at Risk with a downward trend.

RESOURCE CONDITIONS IN DISHPAN BUTTE MEET THE STANDARD?
YES Riparian Miles = 0
NO Riparian Miles = 31 100%
Unknown Riparian Miles= 0

Level Meadows Allotment – Standard #2

The primary system in the Level Meadows allotment is Little Beaver Creek, a perennial stream.

2-5: PFC Level Meadows

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Little Beaver Creek	Perennial	.53/6.42	10180006727-01-S2	8/21/12	Willow, Sedge, Rush	X	
Little Beaver Creek	Perennial	2.11/51.24	10180006727-02-S3	8/21/12	Willow, Sedge, Rush	X	

Little Beaver Creek is a perennial stream broken into two separate reaches. Both reaches are Functioning at Risk with and upward trend. Plant communities consist of both herbaceous and woody components and are adequate to dissipate energy and capture sediment. Some evidence of past erosion in the form of bank cutting can be observed, however, these appear to be healing and the point bars are revegetating.

RESOURCE CONDITIONS IN LEVEL MEADOWS MEET THE STANDARD?
YES Riparian Miles = 39 100%
NO Riparian Miles = 0

Silver Creek Common Allotment – Standard #2

The Silver Creek Common Allotment contains numerous riparian systems. The majority of these systems are perennial streams but there are also a few intermittent streams and subirrigated meadow systems. Over half of the riparian systems in this allotment are Functioning at Risk or Non-Functioning.

2-6: PFC Silver Creek

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Deep Creek	Perennial	.78/7.53	10180006749-01-**S1**	7/10/12	Willow, Sedge, Rush		X
Deep Creek	Perennial	1/9.13	10180006749-02-**S2**	7/11/12	Sedge, Rush, Poa spp		X
Deep Creek	Perennial	1.11/6.75	10180006749-02-**S3**	7/11/12	Upland Spp, Willow, Sedge, Rush		X
Mormon Creek	Perennial	.49/6.57	10180006549-02-**S1**	7/17/12	Sedge, Rush	X	
Mormon Creek	Perennial	6.54/.72	10180006549-01-**S2**	7/17/12	Sedge, Rush, Willow		X
Willow Creek	Perennial	1.10/15.97	10180006651-01-**S1**	7/17/12	Willow, Sedge, Rush	X	
Granite Creek	Meadow	200 ft/.33	10180006646-02-**S1**	7/17/12	Rush, Upland Spp.		X
Granite Creek	Intermittent	.76/6.89	10180006646-01-**S2**	7/17/12	Upland Spp.		X
Burr Gulch	Intermittent	2.08/18.94	10180006751-01-**S1**	8/14/12	Rush, Upland Spp		X

Reach S1 on Deep Creek is functioning at risk with a downward trend. This reach is missing those plants that have deep roots or course woody material necessary to protect the banks and dissipate energy during high flow events. Riparian vegetation lacks vigor and the system overall lacks vertical stability.

Reach S2 on Deep Creek exhibits channeling in the upper reaches of the system, with down cutting and erosion. The upper segment is also lacking sufficient riparian species to maintain soil stability. The lower part of the reach is subirrigated and has a higher abundance of riparian species. Neither the upper nor the lower segment has reached its potential extent. Upland species are invading this entire system, and riparian species have poor age class diversity and low vigor, although some young willows are becoming established. The flood plain does not support adequate course/ large woody material to dissipate energy, which results in a vertically unstable

system, which is evident by active head cutting. If the current erosion continues, head cutting will soon channelize this system. This reach is Functioning at risk with a downward trend.

Deep Creek S3 is better understood as two reaches and was therefore split into two segments by the IDT. Segment A is upstream above the Road Crossing, Segment B is below the road Crossing. Segment A is FAR with and Upward Trend, Segment B is Functioning at Risk with a downward trend. Segment B in not in balance with the landscape and has not achieved its potential width. Vegetation has low diversity and vigor. The lack of riparian species and root masses capable of withstanding high flow events have contributed to massive down cuts that expose bed rock and continue to grow up-channel, exposing more bedrock and creating an incised channel. The flood plain does not support adequate course or woody vegetation to dissipate energy when water in the system moves horizontally during high flows, which results in sloughing outer banks.

Mormon Creek S2 was rated Functioning at Risk with a downward trend. Parts of this stream are very well armored with rock, but other portions consist of riparian soils which are vulnerable to erosion if the stream lacks adequate protection. Old inactive beaver dams are indicative of a decline in system functionality, resulting in a loss in hydrology in the system. The sinuosity and width to depth ratio are out of balance with the landscape, and the riparian area has not reached its potential width. Erosion on Mormon Creek is depositing soil into the Sweetwater River indicating a lack of deep rooted vegetation adequate to withstand high flow events. Some coarse woody material is present, but not enough to limit erosion on this steep gradient.

Granite Creek Meadow S1 is Functioning at Risk with a downward trend, and has not reached its potential width. Only a narrow segment of the meadow has hydric soils. The meadow is lacking diverse plant species composition and the existing shrub community consists of mature plants with no recruitment of young seedlings or saplings. There are several small head cuts on the floodplain where vegetation is comprised mostly of upland species that do not protect the soils in high flow event. The IDT states that these head cuts are dewatering the meadow system.

Granite Creek S2 is an intermittent reach with no live water. It is almost an ephemeral segment due to the lack of water in the system. There are 2 patches of willows. The rest of the reach has cut down to bedrock and only traces of riparian vegetation are left. It is Functioning at Risk with a downward trend.

Burr Gulch S1 is Functioning at Risk with a downward trend. The reach appears to have been much wider in the past then it is now. An increased amount of dry upland species on the edges show that the riparian system is shrinking indicative of a loss in hydrology. Upland species also do not have root masses able to withstand flood events. Head cutting and sloughing is active along this reach which is no longer vertically stable. There is silt moving down the system. Past mining activity at the Burr mine has altered water flows and contributed to the dewatering of the system.

For riparian areas in the Silver Creek Allotment where PFC was not repeated in 2012, there is much that is known from observations in the field. Reach 1018006532_05-S4 of Strawberry Creek exhibits the characteristics of a riparian area that is Functioning at Risk with an upward

trend. Although functional concerns remain, such as a dewatered upper terrace, and sloughing banks, there is a high level of beaver activity and sloughed banks are vegetating. On some of the lower reaches of Strawberry Creek, trend is unknown. Lame jack gulch was found to be Functional at Risk in the 1990s and does not appear to be improving. The Sweetwater River is in Proper Functioning Condition within the Sweetwater Canyon, although some areas could be considered Functioning at Risk with an upward trend. Chimney Creek is Functioning at Risk with a stable trend. The riparian areas surrounding Lewiston Lakes exhibit signs of Functioning at Risk with a downward trend as areas of soil affected by alkali are expanding. Mclean meadows is Functioning at Risk but stable, Radium Springs is well watered and healthy in the center, but Functioning at Risk at the edges and on the west end where its wet meadow connects to the Deep Creek system. Extensive road use in this area may be contributing to some of the issues that are being observed both on Radium Springs and Deep Creek.

RESOURCE CONDITIONS IN SILVER CREEK MEET THE STANDARD?

YES Riparian Acres = 1478	65%
NO Riparian Acres = 807	35%

Cottonwood Basin Allotment – Standard #2

Cottonwood Basin is an allotment with a large amount of private land, with most of the riparian areas occurring on private land. Only a small section of Cottonwood Creek is located on BLM.

2-7: PFC Cottonwood Basin

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Cottonwood Creek	Intermittent	.28/1.4	10180006758-01-S1	8/28/12	Willow		X

Cottonwood Creek reach S1 is no longer inundated with water in relatively frequent events. This channel segment is on a very steep gradient. Several of the side draws were artificially contoured as part of how the old highway was engineered and built. Water flows were augmented in the past by runoff from the old highway and this runoff also contributes a higher than normal level of silt. Herbaceous riparian species including a healthy willow community exist in short sections, but lack the abundance and vigor to protect the soils from high flow events. The segment is very strait and steep with no point bars and several head cuts. The segment is Functioning at Risk with a downward trend.

RESOURCE CONDITIONS IN COTTONWOOD BASIN MEET THE STANDARD?
YES Riparian Acres = 31 66%
NO Riparian Acres = 16 34%

Salisbury AMP Allotment – Standard #2

2-8: PFC Salisbury AMP

Major Stream	Stream Type	Miles/ Acres	Reach ID	Date(s) Assessed	Vegetative Community Type	PFC/FAR (upward trend)	NF/FAR (static, down, not apparent)
Strawberry Creek	Meadow	2	10180006532-02-S1	8/8/12	Willow, Sedge, Rush		X*
Strawberry Creek	Perennial	.28/3.44	10180006532-03-S2	8/8/12	Willow, Sedge, Rush	X	
Strawberry Creek	Perennial	1.08/13.09	10180006532-04-S3	8/14/12	Willow, Sedge, Rush		X*

Two of the three reaches on Strawberry Creek, S1 and S3, were rated Functioning at Risk with no apparent trend. The other, S2, was rated Functioning at risk with an upward trend.

Strawberry Creek S1 was previously designated and assessed as a lotic (flowing) system but it is more properly designated as a lentic (basin) system because it is subirrigated with no channel. Comparisons to prior PFC take this change of designation into account. The wetland area was wider in the past and appears to be shrinking. Past and present mining and road culverts have altered flow patterns. Vegetation with root masses capable of withstanding overland flows lacks vigor due to the dry system. This system is also lacking in adequate vegetative and course and large woody material to dissipate wind and wave events. Head cutting and downstream erosion is apparent.

The riparian area surrounding reach S-3 was much wider in the past and is now showing signs of shrinking, with non-riparian vegetation encroaching into the system. The segment is now incising and forming a secondary flood plain. The riparian vegetation lacks vigor and is no longer providing enough protection to dissipate energy during high water flow events. There is some debris from old beaver dams, and many new efforts at new beaver dams. Erosion, in the form of head cutting and stream bank sloughing directly affect the reach, while runoff from a bare hillside contributes sediment to the system and effects lateral stream movement. The reach lacks natural sinuosity.

RESOURCE CONDITIONS IN SALSISBURY AMP MEET THE STANDARD?

YES Riparian Miles = 132 36%
NO Riparian Miles = 229 63%
Unknown Riparian Miles = 4 1%

Other Allotments – Standard #2

Some of the private allotments have unassessed riparian areas in them. We did not conduct PFC on these reaches. PFC determinations were made on most of these reaches using past PFC data, professional knowledge, and other allotment data. Allotments where riparian is present include the Flagg AMP, McGraw Flat Common, French George Crossing, Atlantic City Upper, Ellis Upper Beaver, Meyers Fenced, and Upper Ellis Ranch Allotments.

Riparian acres that do not meet the standard are largely due to a lack of plant vigor and increasing amounts of upland vegetation that do not protect banks and dissipate energy during high flow events. Water flows have attributed to cutting and channeling of these systems.

RESOURCE CONDITIONS IN THE OTHER ALLOTMENTS MEET THE STANDARD?

YES Riparian Miles = 157	89%
NO Riparian Miles = 12	8%
Unknown Riparian Miles = 6	3%

STANDARD # 3 – Upland Vegetation

Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.

THIS MEANS THAT:

In order to maintain desirable conditions and/or recover from disturbance within acceptable timeframes, plant communities must have the components present to support the nutrient cycle and adequate energy flow. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and microorganisms. The amount of nutrients available and the speed with which they cycle among plants, animals, and the soils are fundamental components of rangeland health. The amount, timing, and distribution of energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Vegetative cover;
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.);
- Bare ground and litter;
- Erosion (rills, gullies, pedestals, capping); and
- Water infiltration rates.

The above indicators are applied as appropriate to the potential of the ecological site. Prolonged drought can also lead to plant decadence and mortality. Due to extreme drought conditions in 2012, annual production was roughly 20-40% of potential for ecological sites across the Landscape and plant reproductive capability was greatly reduced.

The Interpreting Indicators of Rangeland Health method, which considers indicators for hydrology, soils, and biotic integrity, was completed in 2012 for the 27 allotments within the Upper Sweetwater Landscape. These characteristics of an ecological site are interactive and interdependent, but in general the indicators for the biotic integrity pertain to Standard #3. Indicators for upland vegetation health include, but are not limited to, ground cover canopy cover and plant composition, functional/structural plant groups, plant mortality, annual production, reproductive ability and the presence or absence of invasive plants in the community. Observations and data were compared to baseline data in Ecological Site Descriptions (EDS's) to provide supporting information for interpreting the biotic indicators. For summaries of the results of this process see tables 3-1 through 3-19 below. A narrative on how the indicators were interpreted is included for each grazing allotment.

Upland rangelands are divided into Ecological Sites, based on soils, for the purpose of interpreting site capabilities. For each Ecological Site there is an Ecological Site Description (ESD) developed by the Natural Resources Conservation Service (NRCS). The ESDs provided by the NRCS help interdisciplinary teams understand the relationships between the various plant communities that may be found at the sites and the Fundamentals of Rangeland Health. They

also provide the reference sheets that define expected conditions so that IDTs can determine a degree of departure from expected conditions for the Indicators of Rangeland Health for each Ecological Site. The ESDs describe and diagram State and Transition Models for the various plant communities that might exist on each ecological site. ESDs are works in progress and as such are subject to revision and interpretation by professionals in fields such as Rangeland Management, Hydrology, Wildlife Biology and Soil Science.

The current ESDs for the Upper Sweetwater Landscape describe certain plant communities as Historic Climax Plant Communities (HCPC). HCPC is a theoretical end point in a succession model. There are other plant communities that are adapted to the site that are also ecologically functional and may be economically or ecologically desirable for the site. The narratives in the ESDs that describe the various plant communities that may be present on the site have additional information regarding whether the communities are functional or impaired. These narratives help guide the IDT in determining whether an ecological site or certain acres within an ecological site meet or do not meet Standard #3.

Upland sites where biotic integrity is found to be in the –none to slight- or -slight to moderate- departure from expected conditions for soils and hydrology meet the standard. Sites that were found to be in –moderate- departure from expected conditions are subject to professional judgment depending on the factors influencing the departure. Sites found to be in -moderate to extreme- or –extreme departure from expected conditions do not meet the standard.

Some of the allotments in the Upper Sweetwater Landscape have long term monitoring established. Long term Condition and Trend monitoring transects (C&Ts) were re-evaluated in the 2012 season. The Upper Sweetwater Landscape is located primarily in the 10-14 inch precipitation zone, with some upper elevations occurring in the 15-19 inch precipitation zone as defined by the NRCS. Drought has been extensive in this area and can have a major effect on vegetation health and recovery.

C&T transect data provides a current percent composition by weight of key species which can be compared to past readings to establish long-term change or lack of change in upland plant communities. Whether the changes are positive, negative, or whether they occur at all translates to an upward, downward, or stable trend. Typically the allotments that have long term monitoring established also have specific long term objectives for increase or decrease of key species incorporated into an Allotment Management Plan (AMP), or grazing plan, as a term and condition of the grazing permit. In addition to composition by weight, frequency of occurrence of key species is also measured. Frequency is defined as the number of times a plant species is present within a given number of sample quadrats of uniform size placed repeatedly across a stand of vegetation. Frequency is a useful variable, especially for picking up changes in abundance when a particular plant is seldom encountered but its increase or decrease has important implications for trend. Information from the C&T transects can be found in tables 3-x through 3-x, Long Term Monitoring by Species for each allotment below. C&T transects are designated as T-X (transect number) such as T-1, T-2, etc. within each grazing allotment.

Atlantic City Common Allotment – Standard #3

There are three primary ecological sites with in Atlantic City Common: Gravelly, Loamy, and Shallow Loamy 10-14" Precipitation Zone High Plains Southeast. Below are brief descriptions of the dominant ecological sites and its potential.

The gravelly sites would typically have had a Historic Climax Plant Community (HCPC) of bluebunch wheat grass, Indian ricegrass, Needle-and-thread grass, and other native perennial grasses. A healthy stable state on this ecological site might also include abundant sagebrush along with the same grasses that appear in the HCPC. An unhealthy or grazing resistant community would consist of needle leaf sedge and forbs with some sagebrush. Cheatgrass also has the potential to invade into this site with continued disturbance.

The loamy sites would have an HCPC of Rhizomatous wheatgrass/ Needle-and-thread grass, a plant community that consists of these perennial grasses as a major component, along with other native perennial grasses such as bluebunch wheatgrass and Mutton bluegrass. The Big Sagebrush/ Mid Grass and Shrub/Perennial Grass plant communities could also be considered healthy states since soil is still protected by these plant community and hydrological processes are still functioning. In these states the sagebrush would occur in a higher percentage of 25% to 35% cover from 10% to 15% expected in the HCPC.

The shallow loamy sites are expected to have an HCPC of bluebunch wheatgrass/ rhizomatous wheatgrass. The other dominant grasses in the HCPC are mutton bluegrass and Needle-and-thread grass. Black sagebrush/ rhizomatous wheatgrass plant communities are also considered healthy as the soil is protected from excessive erosion, the biotic integrity is typically intact, and the watershed is still functioning.

The IDT evaluated the three dominate ecological sites in Atlantic City Common Allotment using six transect locations. Table 3-1 (below) lists the six transects, the ecological sites they represent, the plant associations that currently occupy the ecological sites, and the degree of departure from expected upland plant conditions at each location.

Table 3-1: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Gravelly 10-14 SE	ACC T-2	Perennial short grass/ Phlox/ Big sagebrush	Bluebunch Wheatgrass	Moderate
Gravelly 10-14 SE	ACC T-3	Big Sagebrush/ Perennial short grass	Bluebunch Wheatgrass	Slight to Moderate
Gravelly 10-14 SE	ACC T-5	Big Sagebrush/ Short grass	Bluebunch Wheatgrass	Moderate
Loamy 10-14 SE	ACC T-4	Shrub/ Perennial Grass	Rhizomatous Wheatgrass/ Needle-and-thread	Slight to Moderate
Shallow Loamy 10-14 SE	ACC T-1	Big Sagebrush/ Phlox	Bluebunch Wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate
Shallow Loamy 10-14 SE	ACC T-6	Big Sagebrush/ Perennial Grass	Bluebunch Wheatgrass/ Rhizomatous Wheatgrass	Moderate

According to data and observations from the IDT the expected species for the key species that would make up the HCPC are present throughout the allotment; however these species are decreasing in some areas. On gravelly and shallow loamy sites, there has been a shift in plant community composition, with mutton bluegrass, a short-statured grass, becoming the dominant grass species. This shift and an accompanying lack of topsoil have been apparent for a long time. Data from the 1980s and 1990s shows that the degraded topsoil conditions and the dominance of mutton bluegrass have been ongoing.

Shallow loamy and gravelly ecological sites on this allotment do not meet the Standard based on existing plant communities. Dominance of mutton bluegrass, decrease in the already too-low occurrence of more desirable mid-stature cool-season bunchgrasses, excessive bare ground and gravel on the soil surface, and low soil stability indicate a grazing-resistant stable state that is functioning at a lowered capacity.

It should be noted, however, that the allotment is making gradual progress toward meeting the Standard. An Allotment Management Plan (AMP) was put in place to correct issues with rangeland health in 1994. Key species identified in the AMP for the Atlantic City Common Allotment were mutton bluegrass, bottle brush squirreltail, bluebunch wheatgrass, western wheatgrass, and Needle-and-thread grass. One of the main goals of the AMP was to increase ground cover to protect the soil from further erosion and to capture loose sediment by increasing mutton bluegrass.

Table 3-2 below compares long-term monitoring data for the years 1994 and 2012. When comparisons are made to conditions that existed before grazing management was implemented, it is apparent that mutton bluegrass has increased at all five C&T transect locations. The increased mutton bluegrass should, over time, begin to build the topsoil necessary to sustain increasing

populations of more desirable grasses. This process must be understood as a long-term solution to upland rangeland health issues on the allotment. Soils that have been degraded for decades do not provide a sufficient substrate for the long-term desired change of increased mid-stature cool-season bunch grasses. For this reason the Atlantic City Common Allotment will struggle in the short term to have the larger bunch grasses as described in the HCPC anticipated for these ecological sites.

Table 3-2: Long Term Monitoring by Key Species

		Composition		Frequency	
Transect	**Plant Species**	**1994**	**2012**	**1994**	**2012**
T-1 Shallow Loamy	Mutton bluegrass	11	16.9	55	74
	Bottlebrush Squirreltail	6	2.8	38	26
	Bluebunch wheatgrass	9	6.1	61	60
T-2 Gravelly	Mutton bluegrass	12	34	49	72
	Bottlebrush Squirreltail	2	1.04	11	6
	Bluebunch wheatgrass	< 1	0	5	0
	Needle-and-thread grass	< 1	< 1	9	1
T-3 Gravelly	Mutton bluegrass	13	21	79	70
	Bottlebrush Squirreltail	1	0	7	0
	Western Wheatgrass	3	7.8	24	31
	Needle-and-thread grass	3	2.8	7	6
T-4 Gravelly	Mutton bluegrass	9	16.7	53	55
	Bottlebrush Squirreltail	2	< 1	7	4
	Western Wheatgrass	2	5.6	17	21
	Indian Ricegrass	4	1	10	2
T-5	Mutton bluegrass	9	27	64	69
	Bottlebrush Squirreltail	3	1.7	16	12
	Western Wheatgrass	< 1	3	7	9
	Indian Ricegrass	< 1	< 1	1	1

The grazing plan was designed to increase mutton bluegrass and consequently improve ground cover. While conditions have improved on these sites under the existing management agreement, the lack of desirable bunchgrasses remains a concern and therefore the gravelly and shallow loamy uplands do not meet the upland standard.

RESOURCE CONDITIONS IN ATLANTIC CITY COMMON MEET THE STANDARD?
YES Upland Acres = 3,399 9%
NO Upland Acres = 34,983 91%
Unknown Acres = 0

Beaver AMP Allotment – Standard #3

Beaver AMP is predominantly composed of two ecological sites; Loamy and Clayey 10-14". The loamy site would typically have a HCPC of Rhizomatous Wheatgrass/ Needle-and-thread grass. This state would also include bluebunch wheatgrass, green needlegrass, mutton bluegrass and big sagebrush. This plant community is resistant to change. As the plant community moves to a big sagebrush mid grass community this site remains relatively stable. The watershed would remain functioning, but disturbance is putting this site at risk.

The clayey site would have a HCPC of Indian ricegrass/ rhizomatous wheatgrass. This plant community also includes species such as bluebunch wheatgrass and mutton bluegrass. Potential vegetation is about 75% grasses or grass-like plants, 10% forbs and 15% woody plants. A Perennial Grass/ Mixed shrub plant community would also be healthy on this site, with a functioning watershed with and intact biotic integrity.

Table 3-3: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Loamy 10-14 SE	BA T-1	Black Sage/ Shortgrass	Rhizomatous wheatgrass/ Needle-and-thread	Moderate to Extreme
Clayey 10-14 E	BA T-2	Perennial Grass/ Mixed Shrub	Indian Ricegrass/ Rhizomatous wheatgrass or Perennial Grass/ Mixed Shrub	Moderate

The plant community at transect BA T-1 is dominated by Sandberg bluegrass, threadleaf sedge and black sagebrush which protect this site from further erosion. While black sagebrush is not expected on a loamy site, soil test pits at the transect location confirm that this site is loamy. However it is probable that the transect was located within an inclusion within the soil mapping unit. Comparison to either ecological site shows that big cool-season bunchgrasses that would characterize a healthy plant community have been replaced by short bluegrasses and short grasslike sedges. For this reason the loamy 10-14 ecological site does not meet the upland Standard.

The dominant grasses currently occupying the clayey ecological sites on this allotment are Sandberg bluegrass, western wheatgrass and bluebunch wheatgrass. The plant community on this site has had a composition shift from big, cool-season bunchgrasses to Sandberg bluegrass as the dominant species. With a composition shift to Sandberg bluegrass soil erosion is increased and soil stability is decreased while plant litter declines (see Tables 1-4 and 1-5 above). The clayey sites on the Beaver AMP Allotment do not meet the upland standard.

The long term monitoring confirms the findings of the IDT. There has been a loss of the deep rooted natives across the allotment. See table 3-4 below.

Table 3-4: Long Term Monitoring by Key Species

Transect	Plant Species	% Composition	
		1986	2012
T-2	Western Wheat	5	2
	Bluebunch wheatgrass	7	5.7
T-3	Western Wheat	17	5.7
	Bluebunch wheatgrass	2	1
T-4	Western Wheat	6	3.4
	Bluebunch wheatgrass	< 1	.4

RESOURCE CONDITIONS IN BEAVER AMP MEET THE STANDARD?
YES Upland Acres = 0
NO Upland Acres = 8958 100%
Unknown Acres = 0

Big Pasture Allotment – Standard #3

The Big Pasture Allotment is made up of 4 major ecological sites: Clayey 10-14" Precipitation Zone East, and Loamy, Sandy, Shallow Loamy 10-14" Precipitation Zone High Plains Southeast. The clayey site has an HCPC of Indian ricegrass/ Rhizomatous wheatgrass. This plant community also includes other grass species such as bluebunch wheatgrass mutton bluegrass. The alternative plant community that allows for proper watershed function and healthy biotic integrity is the perennial grass/ mixed shrub community. Potential plant community composition is approximately 75% grasses or grass-like plants, 10% forbs and 15% woody plants.

The loamy site would have an HCPC of Rhizomatous wheatgrass/ Needle-and-thread grass along with other native perennial grasses such as bluebunch wheatgrass and Mutton bluegrass. A Big Sagebrush/ Mid Grass plant community could also be considered a healthy state for this ecological site as soil is still protected except in situations of disturbances such as wildfire, vegetation treatments, insect infestation, and prolonged excessive grazing pressure etc.. In this state the sagebrush would occur in a higher percentage of 25% to 35% cover from 10% to 15% expected in the HCPC.

The sandy ecological sites are expected to have a Needle-and-thread grass/ rhizomatous wheatgrass community. Secondary grasses that dominate the HCPC include Indian ricegrass, bottlebrush squirreltail, and threadleaf sedge. A Big Sagebrush/short grass community reduces biotic integrity due to a loss of mid stature grasses and plant community diversity. The watershed is functioning, but is at risk for erosion.

The shallow loamy site is expected to have a HCPC of bluebunch wheatgrass/ rhizomatous wheatgrass. The other dominant grasses in the HCPC are mutton bluegrass and Needle-and-thread grass. Black sagebrush/ rhizomatous wheatgrass plant communities would also be considered healthy as the soil is protected from excessive erosion, the biotic integrity is typically intact, and the watershed is still functioning.

Table 3- 5: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Clayey 10-14 SE	BP T-6	Perennial Grass/ Big Sagebrush	Indian Ricegrass/ Rhizomatous wheatgrass or Perennial Grass/ Mixed Shrub	Slight
Loamy 10-14 SE	BP T-1	Short grass/Big Sagebrush	Rhizomatous wheatgrass/ Needle-and-thread	Moderate
Loamy 10-14 SE	BP T-4	Short grass/Big Sagebrush	Rhizomatous wheatgrass/ Needle-and-thread	Moderate
Sandy 10-14 SE	BP T-3	Big Sagebrush/ Bluebunch Wheatgrass	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate
Sandy 10-14 SE	BP T-5	Big Sagebrush/ Bluebunch Wheatgrass	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate
Shallow Loamy 10-14 E	BP T-2	Perennial Grass/ Big Sagebrush	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	None to Slight

Loamy sites within Big Pasture currently lack deep-rooted cool-season bunch grasses, such as bluebunch wheat grass, that would promote infiltration and reduce runoff. Sandberg bluegrass is the dominant grass in these sites with increasing amounts of mutton bluegrass. For this reason the loamy sites do not meet the upland Standard.

The Interpreting Indicators method and the associated Step Point transects show that the clayey, sandy, and shallow loamy sites have deep rooted native grass species such as bluebunch wheatgrass, Indian ricegrass and Needle-and-thread grass that promote infiltration and reduce runoff. The structural and functional groups are mostly intact, and invasive species are minimal. Soils are stable with limited signs of rills, pedestals, terracettes and bare ground. Soil depths are as expected for these sites. For these reasons the watershed is found to be generally healthy and the remaining ecological sites in the Big Pasture Allotment meet the upland Standard.

The long term C&T monitoring transects show overall improvement in plant composition within the allotment since 1982. Table 3-6, below, shows an overall pattern across the allotment of decreasing Sandberg bluegrass and increasing or static bluebunch wheatgrass and Needle-and-thread grass. Only a few transects show a loss of deep rooted bunch grasses.

Table 3-6: Long Term Monitoring by Key Species

Transect	Plant Species	% Composition		Frequency	
		1982	2012	1982	2012
T-1 (SwLy)	Needle-and-thread	5.9	4.6	25	31
	Western Wheat	3.99	6.6	45	60
	Bluebunch wheatgrass	9.4	4.0	29	2
T-3 (SwLy)	Western Wheatgrass	1.97	8	30	56
	Bluebunch Wheatgrass	9.7	9	23	31
T-4 (SwSy)	Bluebunch Wheatgrass	2.31	11.24	38	7
	Needle-and-thread	2.61	12.94	62	42
T-5 (SwLy)	Mutton bluegrass	9.10	8.98	16	26
	Sandberg Bluegrass	5.93	5.84	38	82
T-6 (SwLy)	Mutton bluegrass	4.13	11.9	26	49
	Sandberg Bluegrass	14.74	5.7	29	73
T-8 (Sy)	Western Wheat	3.14	1.54	46	22
	Needle-and-thread	6.92	9.35	48	56
T-9 (SwSy)	Mutton bluegrass	14.58	14.3	73	50
	Sandberg Bluegrass	10.42	2.82	64	69
T-10 (SwSy)	Needle-and-thread	20.76	8.99	46	69
	Mutton bluegrass	8.73	6.33	46	22
T-11 (SwSy)	Western Wheat	4.8	9.2	51	70
	Sandberg Bluegrass	6.9	0	72	0
T-12 (SwLy)	Sandberg Bluegrass	6.9	7.24	59	76
T-13 (SwLy)	Western Wheat	4.56	7.4	41	78
	Prairie Junegrass	4.64	2.1	80	16
T-14 (SwLy)	Western Wheat	4.04	7.33	57	74
T-15 (SwSy)	Bluebunch Wheatgrass	7.02	12.8	29	30
	Sandberg Bluegrass	5.81	4.9	51	74
T-16 (SwLy)	Sandberg Bluegrass	6.52	3.4	50	67
T-17 (SwLy)	Western Wheat	2.45	9.83	37	44
	Needle-and-thread	.2	6	1	23
T-18 (SwLy)	Western Wheat	4.79	14.8	53	88
	Mutton Bluegrass	2.21	19.2	76	72
T-19 (Ly)	Mutton Bluegrass	11.48	22.8	18	76
	Sandberg Bluegrass	5.21	8.3	47	81

RESOURCE CONDITIONS IN BIG PASTURE MEET THE STANDARD?

YES Upland Acres = 60,364 79%

NO Upland Acres = 15,726 21%

Unknown =0

Dishpan Butte Allotment – Standard #3

Dishpan Butte has 3 dominant ecological sites, Shallow Sandy, Loamy, and Sandy 10-14" Precipitation Zone High Plains Southeast. The potential composition of vegetation on the shallow sandy site is approximately 75% grasses/ grass-likes, 10% forbs, and 15% woody plants. The grass species that make up this potential or HCPC are bluebunch wheatgrass, Indian rice grass, mutton bluegrass, and Needle-and-thread grass. The dominant shrubs would be black sage and big sagebrush.

The loamy site would have an HCPC of Rhizomatous wheatgrass/ Needle-and-thread along with other native perennial grasses. The Big Sagebrush/ Mid Grass plant could also be considered a healthy state as soil is still protected except in situations of disturbances such as wildfire, vegetation treatments, insect infestation, and prolonged excessive grazing pressure etc. In this second healthy state the sagebrush would have increased to 25-35% of the cover from 10-15% expected in the HCPC.

The sandy ecological site is expected to have a Needle-and-thread/ rhizomatous wheatgrass community. Secondary grasses or grass-like species that dominate the HCPC include Indian ricegrass, bottlebrush squirreltail, and threadleaf sedge. A Big Sagebrush/short grass plant community reduces the biotic integrity due to the loss of mid stature grasses and diversity. The watershed is functioning with this community, but is at risk for erosion.

Table 3- 7: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Shallow Sandy 10-14 SE	DB T-2	Big Sagebrush/ Needle-and-thread – Grass like	Mid-stature Bunchgrasses	Slight to Moderate
Loamy 10-14SE	DB T-3	Big Sagebrush/ Mid Grass	Rhizomatous wheatgrass/ Needle-and-thread	Slight to Moderate
Sandy 10-14 SE	DB T-1	Big Sagebrush/ Grass Like	Needle-and-thread/ Rhizomatous wheatgrass	Moderate

From transect DB T-1 it is apparent that sandy sites within the Dishpan Butte Allotment have and increased amount of threadleaf Sedge. The Reference Plant Community for the sandy sites is a Needle-and-thread/ Rhizomatous Wheatgrass community. Although threadleaf sedge is expected in a sandy site, the amounts seen during the evaluations were high and had replaced other dominant grass species. Although there are signs of improvement in the Condition and Trend data (Table 3-8) the sandy ecological site in the Dishpan Butte Allotment do not meet the upland Standard due to the dominance of threadleaf sedge.

The Shallow Sandy sites are lacking some of the deep rooted natives that would be expected. The HCPC for this site is predominantly bluebunch wheat grass, Indian ricegrass, and mutton bluegrass. Indian ricegrass is prevalent on this site, but threadleaf sedge is the dominant grass-

like species. These sites are stable at the current time, but show signs of degradation. For these reasons the shallow sandy sites do not meet the Standard.

The IDT determined that the loamy sites in this allotment have plant communities that are similar to that expected. Rills, gullies, pedestals and terracettes are limited and match what is expected. For these reasons the loamy ecological sites meet the upland standard.

The subdominant shallow loamy ecological site does not meet the upland standard due to the loss of blue bunch wheat grass. Bluebunch wheatgrass should be the dominant grass species on this ecological site.

In general, desirable bunch grasses such as needle-and-thread grass and Bluebunch wheatgrass are static or show an increase in frequency in the Dishpan Butte Allotment. Signs of improvement from increased cool-season bunch grasses can be seen in the long term monitoring table (Table 3-8) below.

Table 3- 8: Long Term Monitoring by Key Species

		Composition		**Frequency**	
Transect	**Plant Species**	**1987**	**2012**	**1987**	**2012**
T-1 Loamy	Needle-and-thread	5	3	15	14
	Bluebunch wheatgrass	0	3.1	0	22
	Mutton bluegrass	5	17.5	76	63
T-2 Loamy	Needle-and-thread	7	22.5	55	63
	Bluebunch wheatgrass	0	1.3	0	3
	Mutton bluegrass	10	6.7	39	26
T-3 Sandy	Needle-and-thread	0	2.6	0	15
	Bluebunch wheatgrass	9	7	48	51
	Mutton bluegrass	4	5.8	40	31
T-4 Loamy	Needle-and-thread	1	4.9	6	20
	Bluebunch wheatgrass	< 1	7	1	7
	Mutton bluegrass	13	14.1	69	44
T-5 SwLy	Needle-and-thread	2	7.4	13	27
	Bluebunch wheatgrass	3	0	24	0
	Mutton bluegrass	< 1	2.4	2	4

RESOURCE CONDITIONS IN DISHPAN BUTTE MEET THE STANDARD?

YES Upland Acres = 3,578 24%
NO Upland Acres = 11,000 72%
UNKNOWN Acres = 677 4%

Flagg AMP Allotment – Standard #3

Flagg AMP is made up of primarily of Shallow Loamy and Sandy 10-14" Precipitation Zone High Plains Southeast ecological sites. The sub dominant sites with in Flagg AMP include Gravelly and Loamy 10-14" Precipitation Zone High Plains Southeast. The shallow loamy site is expected to have an HCPC of bluebunch wheatgrass/ rhizomatous wheatgrass. The other dominant grasses in the HCPC are mutton bluegrass and needle-and-thread. Black sagebrush/ rhizomatous wheatgrass plant communities would also be considered healthy as the soil would still be protected from excessive erosion, the biotic integrity would still be typically intact, and the watershed would still be functioning.

The sandy ecological sites are expected to have a needle-and-thread/ rhizomatous wheatgrass plant community. Secondary grasses that dominate the HCPC include Indian ricegrass, bottlebrush squirreltail, and threadleaf sedge. A Big Sagebrush/short grass plant community reduces biotic integrity of the site due to the loss of mid stature grasses and diversity. The watershed is functioning with that community, but is at risk for erosion.

Table 3-9: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Shallow Loamy 10-14 SE	FA T-1	Big Sagebrush / Short Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Moderate
Sandy 10-14 SE	FA T-2	Big Sagebrush/ Short Grass and Grass like	Needle-and-thread/ Rhizomatous wheatgrass	Moderate

Shallow loamy soils in the Flagg AMP Allotment have been lost and degraded in the past. The current plant community on shallow loamy ecological sites within the allotment is a Sandberg bluegrass, phlox, big sagebrush plant community. There is a moderate departure from the expected bluebunch wheatgrass, western wheatgrass, needle-and-thread plant community. The loss of topsoil on these sites has limited the plant community composition and production. Shallow Loamy sites within the Flagg AMP Allotment do not meet the upland Standard.

Sandy soils have also been lost and degraded (see table 1-14). The plant community has changed from the Indian ricegrass, bottlebrush squirreltail plant community to a Sandburg bluegrass, threadleaf sedge community. The amount of bare ground is within the expected range with litter being on the low side. The sandy sites within this allotment do not meet the standard.

This allotment has high amounts of past historic use. Soils on these sites have a degraded soil structure causing a decrease in deep rooted native plants across the allotment. Determinations were made on these subdominant sites within this allotment based on long term monitoring patterns of use and IDT observations. Gravelly, loamy, and shallow loamy sites will not meet the upland standard. However, according to the % cover by live vegetation in the long term

monitoring has increased across the allotment. See table 3-11 for the change of total live cover from 1997 to 2012.

Table 3- 10: Long Term Monitoring by Key Species (Composition)

Transect	Plant Species	1997	2012
T-1 (SwLy)	Mutton bluegrass	5.4	11.69
	Sandberg Bluegrass	4.2	13.09
	Bluebunch wheatgrass	2.3	1.81
	Western Wheat	4.6	.83
T-2 (Sy)	Mutton bluegrass	15.0	20.21
	Sandberg Bluegrass	9.8	4.42
	Prairie Junegrass	0	.63
	Western Wheat	31.5	6.73
T-3 (SwLy)	Needle-and-thread	15.3	2.56
	Western Wheat	.6	4.71
	Sandberg Bluegrass	-	3.64
T-4 (Sy)	Mutton bluegrass	-	2.58
	Sandberg Bluegrass	-	7.2
	Needle-and-thread	10.6	.5
	Western Wheat	4.2	13.4
T-5 (SY)	Western Wheat	4.8	6.1
	Sandberg Bluegrass	9.2	4.7
T-6 (Sy)	Western Wheat	1.1	4.40
	Sandberg Bluegrass	16.6	11.74

Table 3- 11: % Cover, Live Vegetation, Long Term Monitoring

Transect	1997	2012
T-1	18	54.44
T-2	11.5	43.76
T-3	21.8	63.1
T-4*	24	4.9
T-5	25.7	65.17
T-6	30	54.61

* T-4 is right next to a well

RESOURCE CONDITIONS IN FLAGG AMP MEET THE STANDARD?
YES Upland Acres = 0
NO Upland Acres = 11,463 100%
UNKNOWN Acres = 0

Level Meadows Allotment – Standard #3

Course Upland and Shallow Igneous are the dominant ecological sites within the Level Meadows allotment. The course upland site has a HCPC described as Columbia Needlegrass/ Spikefescue, with an alternative plant community of Idaho fescue/ mixed shrub. These communities are within the same reference state. Both plant communities have intact biotic integrity with a functioning watershed.

The Shallow Igneous sites have an HCPC of bitterbrush and bluebunch wheatgrass. Idaho fescue is another major grass species within this ecological site and could make up to 10-25% of the composition. This plant community is highly drought resistant. The Bitterbrush/ Black sagebrush community is also a stable state and provides protection from wildfire. Big sagebrush and black sagebrush are also major components of the HCPC, often making up 20-75% of the annual production. The forage value of the Bitterbrush/ Black sagebrush community is limited and will decrease wildlife values.

Table 3-12: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Course Upland 15-19	LM T-1	Big Sagebrush/ Mid Stature Grasses	Columbia Needlegrass/ Spike fescue	Slight to Moderate
Shallow Igneous 15-19 W	LM T-2	Shortgrass/ Forb	Bitterbrush/ Bluebunch wheatgrass	Moderate

The course upland site has a plant community made up of bluebunch wheatgrass and Idaho Fescue, and was rated as a slight to moderate degree of departure from expected conditions on biotic integrity. The soils have no apparent signs of rills, water flow patterns, pedestals, or terracettes. This site also exceeded the 4+ stability rating and is within the expected ranges for bare ground and litter. For these reasons the course uplands will meet the upland standard.

The major grass species on the shallow igneous site (LM T-2) is Sandberg bluegrass. Shallow rooted grasses are typically limited in 15-19” precipitation zones. Wyoming big sage and phlox have also become dominant across the landscape in the shallow igneous site. While Wyoming big sage may be expected on the site, increased Sandberg bluegrass and phlox have replaced the more functional and desirable species of Idaho fescue and bluebunch wheatgrass, decreasing the biotic integrity of the site. For this reason the shallow igneous ecological site within this allotment will not meet the upland standard.

The two conditions of the subdominant ecological sites, shallow loamy and loamy, is unknown. There is limited data and institutional knowledge for this allotment as access is limited due to the large amounts of surrounding private ground.

RESOURCE CONDITIONS IN LEVEL MEADOWS MEET THE STANDARD?

YES Upland Acres = 1,806	56%
NO Upland Acres = 330	10%
Unknown Acres= 1,113	34%

McGraw Flat Common Allotment – Standard #3

Clayey 10-14" and Shallow Loamy 10-14" East are the dominant ecological sites within the McGraw Flat Common Allotment. Sub-dominant sites include shallow sandy and loamy.

The clayey sites have a HCPC of Indian ricegrass/ Rhizomatous wheatgrass. This plant community also includes other grass species such as bluebunch wheatgrass mutton bluegrass. The other reference plant community that leaves the watershed functioning and the biotic interiority intact is the Perennial Grass/ Mixed shrub plant community. Potential vegetation is about 75% grasses or grass-like plants, 10% forbs and 15% woody plants.

The shallow loamy site is expected to have a HCPC of bluebunch wheatgrass/ needle-and-thread. The other dominant grass in the HCPC is Indian ricegrass. Perennial Grass/ Mixed Shrub plant communities would also be considered healthy since the soil remains protected from excessive erosion, the biotic integrity is typically intact, and the watershed is still functioning.

Table 3-13: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Clayey 10-14 E	MFC T-1	Sagebrush/ perennial grass	Bluebunch Wheatgrass	Moderate
Shallow Loamy 10-14 E	MFC T-2	Sagebrush/ Mid stature grasses	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Moderate

The plant community at transect MFC T-1in the McGraw Flat Common Allotment has become dominated with Sandberg bluegrass and mutton bluegrass. These clayey sites are in a transition zone between Perennial grass/ Mixed Shrub and Mixed Shrub/Bare Ground plant communities. There is an increase in short stature grasses and a decrease in cool-season bunch grasses/ rhizomatous grasses. Soils erosion is active with rills and pedestalling. The soils have exhibited excessive water flow patterns that are numerous and extensive, wind scours, blowouts, depositional area are common. For these reasons the clayey ecological site within this allotment will not meet the upland standard.

The long term monitoring data shown in table 3-14 (below) confirms observed changes to the deep rooted native cool-season bunchgrasses such as bluebunch wheatgrass, needle-and-thread grass and Indian ricegrass that were identified as decreasing by the IDT.

Table 3-14: Long Term Monitoring by Key Species

		Composition		Frequency	
Transect	**Plant Species**	**1994**	**2012**	**1994**	**2012**
T-1 Cy	Western Wheatgrass	7.0	4.2	81	73
	Sandberg Bluegrass	1	2.5	57	50
	Mutton bluegrass	5	7.5	39	57
T-2 SwLy	Western Wheatgrass	5	3.1	61	61
	Bluebunch wheatgrass	7	10.9	60	49
	Needle-and-thread	1	.4	12	6
T-3 Cy/ShC	Western Wheatgrass	5	7.5	67	81
	Sandberg Bluegrass	1	7.1	52	81
	Mutton bluegrass	< 1	< 1	1	1
T-4 SwLy	Bluebunch Wheatgrass	27	8.2	88	45
	Needle-and-thread	6	2.8	26	21
	Indian Ricegrass	1	< 1	6	1
T-5 Ly	Western Wheatgrass	.6	1.3	16	33
	Bluebunch wheatgrass	6	4.7	43	41
	Mutton bluegrass	7	13.3	66	78
T-6 Cy	Western Wheatgrass	21	6.8	89	83
	Bluebunch wheatgrass	.3	0	2	0
	Mutton bluegrass	13	11.1	72	63

RESOURCE CONDITIONS IN MCGRAW FLAT COMMON MEET THE STANDARD?

YES Acres = 6,881 59%
NO Acres = 4,324 38%
Unknown = 427 3%

Silver Creek Common Allotment – Standard #3

The dominant ecological sites within Silver Creek Allotment are Shallow Loamy 10-14" Precipitation Zone East, Loamy and Gravelly 10-14" Precipitation Zone Southeast, and Shallow Igneous 10-14" Precipitation Zone.

The shallow loamy site occupies the majority of upland acres within the allotment and is expected to have an HCPC of bluebunch wheatgrass/ needle-and-thread. The other dominant grass in the HCPC is Indian ricegrass. Perennial Grass/ Mixed Shrub plant communities would also be considered healthy for this ecological site because with this community the soil is protected from excessive erosion, the biotic integrity is typically intact, and the watershed is still functioning.

The loamy site would have an HCPC of Rhizomatous wheatgrass/ Needle-and-thread along with other native perennial grasses such as bluebunch wheatgrass and Mutton bluegrass. A Big Sagebrush/ Mid Grass plant community could also be considered a healthy state as soil is still protected except in situations of disturbances. In this state the sagebrush would occur in a higher percentage of 25% to 35% cover from 10% to 15% expected in the HCPC.

Gravelly sites would typically have a Historic Climax Plant Community (HCPC) of bluebunch wheatgrass; Indian ricegrass, needle-and-thread, and other native perennial grasses should dominate this site along with the bluebunch wheatgrass. An unhealthy or grazing resistant community would consist of needleleaf sedge and forbs. Cheatgrass also has the potential to invade into this site with continued disturbance.

HCPC for the Shallow Igneous sites is described as bitterbrush/ rhizomatous wheatgrass. Potential vegetation is about 65% grasses or grass likes, 10% forbs, 25% woody plants. Major grasses include bluebunch wheatgrass, Indian ricegrass, needle-and-thread, and Letterman needlegrass. Bitterbrush/ Black Sagebrush plant community is another healthy state that can be found within the shallow igneous sites. Bitterbrush and big sagebrush are significant components of this plant community, often making up 20-75% of the annual production. The biotic integrity of this plant community is usually intact, however forage value will decrease and wildlife values will shift toward different animal species. This watershed is still functioning.

Table 3-16: Upland Qualitative Assessment Summary

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Shallow Loamy 10-14 SE	SC T-1	Black sagebrush/ Grass like	Bluebunch Wheatgrass	Moderate to Extreme
Shallow Loamy 10-14 SE	SC T-3	Short Grass/ Sagebrush	Rhizomatous wheatgrass/ Needle-and-thread	Moderate to Extreme
Loamy 10-14 SE	SC T-2	Sagebrush / Short Grass/Phlox	Bitterbrush/ Rhizomatous wheatgrass	Moderate to Extreme
Gravelly 10-14 SE	SC T-4	Sagebrush / Short Grass/Phlox	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Moderate
Shallow Igneous 10-14 W	SC T-5	Black Sage/ Perennial Grass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Slight to Moderate

The current stable state on the shallow loamy sites are mixed shrub/ bare ground communities. The mixed shrub/ bare ground communities have poor plant diversity. Cool season grasses have been eliminated or greatly reduced. Soil erosion is increased due to the amount of bare ground. Pedestals and terracettes, wind scoured blowouts and depositional area are apparent and attributing to the soil loss. The shallow loamy sites in this allotment will not meet the upland Standard.

The plant community on the loamy site has changed from the HCPC to a Heavy Brush Plant Community. This community is dominated by Big Sagebrush with a sparse understory of western wheatgrass, other short grasses and threadleaf sedge, a short, grass-like plant. Herbaceous production is greatly reduced. This site has potential to have excessive erosion, although the soil structure and stability remains intact. This site does not meet the upland standard.

The plant community occupying the gravelly site is dominated by big sagebrush, phlox and short statured grasses. This site is very unstable and vulnerable to excessive erosion in this state; however rock fragments typically prevent serious erosion from occurring. With this plant community in place, the watershed is usually at risk or nonfunctioning due to an increase of bare ground. The gravelly site will not meet the upland standard.

The Shallow Igneous 10-14 W sites meet the upland standard as it is currently occupied by a perennial grass black sage plant community. The watershed is still functioning and the biotic integrity remains intact.

Shallow sandy and course upland ecological sites also will not meet the upland Standard. We do not have data for these sites, which altogether are comprised of less than 1000 acres. However, data from adjacent uplands and field observations of similar conditions lead the IDT to conclude that these range sites does not meet the Standard along with the surrounding uplands.

Table 3- 17: Long Term Monitoring by Key Species

Transect	Plant Species	Composition		Frequency	
		1994	2012	1994	2012
T-1 SyLy	Bluebunch wheatgrass	2	4.7	32	31
	Western Wheatgrass	3	6.6	81	62
	Needle-and-thread	< 1	0	1	0
T-2 Sy	Bluebunch wheatgrass	8	8.2	36	33
	Indian Ricegrass	3	1	10	2
	Needle-and-thread	7	5.5	43	27
T-3 SyLy	Bluebunch wheatgrass	<1	< 1	1	1
	Western Wheatgrass	3	7.4	78	72
	Mutton bluegrass	3	7.8	66	43
T-4 Ly	Bluebunch Wheatgrass	6	6.7	34	36
	Needle-and-thread	1	0	5	0
	Mutton bluegrass	9	12.3	69	58
T-5 Ly	Bluebunch wheatgrass	2	2.7	21	21
	Western Wheatgrass	2	5	41	37
	Needle-and-thread	1	.7	18	8
T-6 SyLy	Bluebunch wheatgrass	11	8.6	40	37
	Western Wheatgrass	1	3.8	19	20
	Mutton bluegrass	10	14.1	68	77
T-7 SyLy	Bluebunch Wheatgrass	9	16	81	71
	Needle-and-thread	< 1	0	3	0
	Mutton bluegrass	3	3	34	18
T-8 SyLy	Bluebunch Wheatgrass	6	6	64	63
	Idaho Fescue	8	6.4	57	53
	Mutton bluegrass	5	5	47	53
T-9 Ly	Prairie June Grass	7	4.4	52	28
	Western Wheatgrass	4	7.6	59	66
	Mutton bluegrass	11	14.8	53	82

The long term monitoring within the allotment shows that frequency and composition of Bluebunch wheatgrass is stable. Mutton bluegrass, a key species in the Allotment Management Plan for the Silver Creek Common Allotment, has increased, indicating that there may be progress toward meeting the Standard. However, a decreased frequency of Needle-and-thread and Indian ricegrass can be seen when looking at table 3-17 (above). Further analysis is needed to determine if significant progress is being made toward meeting the Standard.

RESOURCE CONDITIONS IN SILVER CREEK MEET THE STANDARD?

YES Upland Acres = 3,359	10%
NO Upland Acres = 26,223	80%
UNKNOWN = 3,360	10%

Small Private Allotments – Standard #3

The small private allotments stretch the length of the Upper Sweetwater Landscape. These allotments have small amounts of public land and a large variety of ecological sites and precipitation zones. The various precipitation zones that can be found in these small allotments are described as follows:

Course Upland 15-19" precipitation zone East, Loamy 15-19" precipitation zone East, and Shallow Loamy 15-19" precipitation zone East both have a historic climax plant community of Columbia Needlegrass/ Spike fescue. Spike fescue/ king spike fescue is also a major component of the HCPC. Idaho Fescue/ mixed shrub plant community and the Montana wheatgrass/ rubber rabbit brush and/or Three tip sage community are all stable states that can occur on these sites. The watershed is functioning and biotic integrity is intact when the sites are occupied by any of these three states.

Gravelly 10-14" precipitation zone South East has a HCPC of Bluebunch wheatgrass. Other dominant species within the Bluebunch wheatgrass community are Indian ricegrass and needle-and-thread grass. Common woody plants include skunk brush sumac and green rabbit brush. This state is stable and has a functioning watershed. The needleleaf sedge/ Forb plant community, another state that could be found on this site, is unstable and functioning at risk.

Loamy 10-14" precipitation zone South East would have a HCPC of Rhizomatous wheatgrass/ Needle-and-thread along with other native perennial grasses. The Big Sagebrush/ Mid Grass plant community could also be considered a healthy state as soil is still protected except in situations of disturbances. In this state the sagebrush would have increased to 25 to 35% of cover from 10-15% expected in the HCPC.

Sandy 10-14" precipitation zone South East ecological sites are expected to have a needle-and-thread/ rhizomatous wheatgrass for an HCPC. Other grasses and grass like plants that dominate the HCPC include Indian ricegrass, bottlebrush squirreltail and threadleaf sedge. The potential vegetation is estimated to be 75% Grasses/ grass-likes 10% forbs and 15% woody plant. The Big Sagebrush/short grass plant community reduces biotic integrity due to the loss of mid grasses and diversity. The watershed is functioning when occupied by this plant community, but is at risk for erosion.

Shallow Loamy 10-14" precipitation zone South is expected to have a HCPC of bluebunch wheatgrass/ needle-and-thread grass. The other dominant grass in the HCPC is Indian ricegrass. Perennial Grass/ Mixed Shrub plant communities would also be considered healthy on this site as the soil is protected from excessive erosion, the biotic integrity is typically intact, and the watershed is still functioning.

Shallow Sandy 10-14 has a historic plant community of Mid Stature Bunch Grasses. The shrub component in the HCPC for this site is 5-15% of cover. The big sagebrush/ needle-and-thread plant community is a healthy, stable site that is protected from excessive erosion. The biotic integrity of these plant communities is intact. The big sagebrush/ needle-and-thread plant community would have decreased forage and wildlife values.

Table 3-18: Upland Qualitative Assessment Summary, Small Private Allotments

Ecological Site	Transect Number	Current Plant Association	Expected Plant Association	Biotic Integrity: Degree of Departure from Expected
Coarse Upland 15-19 E	French George Crossing FGC T-1	Big Sagebrush/ Perennial Grass	Columbia Needlegrass/ Spikefescue or Idaho fescue/ mixed shrub	Moderate
Gravelly 10-14 SE	Atlantic City Lower ACL T-1	Big Sagebrush/ Perennial Grass	Bluebunch wheatgrass	Moderate
Gravelly 10-14 SE	Atlantic City Upper ACU T-1	Big Sagebrush/ Perennial Grass	Bluebunch wheatgrass	Moderate
Loamy 10-14 SE	Lower Ellis Ranch LER T-1	Big Sagebrush/ Perennial Grass	Rhizomatous wheatgrass/ Needle-and-thread	Moderate
Loamy 15-19 E	Ellis Upper Beaver EUB T-1	Big Sagebrush/ Perennial Grass	Columbia Needlegrass/ Spikefescue or Idaho fescue/ mixed shrub	Moderate
Sandy 10-14 SE	Myers Fenced MF T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	None to Slight
Sandy 10-14 SE	Whitlock Fenced WF T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate
Sandy 10-14 SE	Flagg Individual FI T-1	Big Sagebrush/ Perennial Grass	Needle-and-thread/ Rhizomatous wheatgrass	Moderate
Sandy 10-14 SE	Trent and Home T&H T-1	Big Sagebrush/ Grasslike	Needle-and-thread/ Rhizomatous wheatgrass	Slight to Moderate
Sandy 10-14 SE	Upper Ellis Ranch UER T-1	Big Sagebrush/ Grasslike	Needle-and-thread/ Rhizomatous wheatgrass	Moderate
Shallow Loamy 10-14	Long Creek LC T-1	Big Sagebrush/ Perennial Grass	Bluebunch wheatgrass/ Rhizomatous wheatgrass	None to Slight
Shallow Loamy 10-14 SE	Salisbury AMP SA T-1	Perennial Grass	Bluebunch wheatgrass/ Rhizomatous wheatgrass	Slight to Moderate
Shallow Loamy 10-14 SE	McGraw Flat Individual MFI T-1	Sagebrush/ Shortgrass	Bluebunch wheatgrass/ Rhizomatous Wheatgrass	Moderate
Shallow Loamy 10-14 SE	Auer Ranch AR T-1	Black Sage/ Perennial Grass	Bluebunch wheatgrass/ Rhizomatous wheatgrass	Moderate
Shallow Sandy 10-14 SE	Cottonwood Basin CB T-1	Big Sagebrush/ Perennial Grass	Mid-stature Bunchgrasses	Slight to Moderate
Shallow Sandy 10-14 SE	Hay Meadow HM T-1	Big Sagebrush/ Perennial Grass	Mid-stature Bunchgrasses	None to Slight

This group of allotments which has been described as small private allotments contain few public land acres compared to the other grazing allotments described in this document. In addition, they typically have much more private land and/or state land within their boundaries than they have BLM administered public land. The information found in the NRCS ESDs was consulted and compared to the conditions found on public land acres within the allotments to determine whether they meet or do not meet the standard, the same as was done with the larger allotments. However, due to the small amount of total acres within the allotments, meeting or not meeting of the upland Standard, as described in the following paragraphs, will be for all the public land

within each of the allotments, regardless of which ecological sites they contain. The following are allotments that do not meet the upland standard due to the loss of biotic integrity:

The French George Crossing Allotment, represented by transect FGC T-1, is losing top soil. This allotment has had a shift from the HCPC of Columbia needle grass/ spike fescue to a short grass plant community. Sandberg bluegrass and mutton bluegrass are the primary grass species in the allotment. Water flow patterns are common on the uplands in this allotment. Active erosion can be seen in pedestals, wind scoured areas and blown out areas. The functional/ structural groups of the plant community are moderately reduced from what is expected.

The Atlantic City Lower Fenced Allotment (ACL T-1) has significant loss of soil structure. Active erosion can be seen in pedestalling, terracettes and water flow patterns. The plant community is made up of Big Sagebrush, sandberg bluegrass, and bluebunch wheatgrass instead of the bluebunch wheatgrass, Indian ricegrass and needle-and-thread grass that would be expected.

Soil loss is apparent in the Atlantic City Upper Fenced Allotment (ACU T-1) and there are active water flow patterns and pedestals. Sandberg Bluegrass and Western Wheat are the primary grass species within the allotment, where bluebunch wheatgrass and Indian ricegrass are expected.

Uplands in the Lower Ellis Ranch Allotment, (LER T-1) have water flow patterns that are numerous, extensive, and connected along with active pedestalling. Plant communities have shifted and are negatively affecting infiltration of water.

In the Flagg Individual Allotment, (FI T-1) soil surface loss is apparent and there is active pedestalling, and water flow patterns. Wind-scoured, blown out areas and litter movement are visible. This site is dominated mostly by sagebrush with an understory of western wheatgrass and bluegrasses. Indian ricegrass, squirreltail and threadleaf sedge would be expected on the uplands in this allotment.

Uplands in the Trent and Home Place Allotment, (T&H T-1) have reduced soil structure and wind scouring. The uplands are dominated by thread leaf sedge and have an increased shrub component. Indian ricegrass, squirreltail and thread leaf sedge should be the dominant grasses here.

The Ellis Upper Beaver Allotment, (EUB T-1) is dominated by big sagebrush and Sandberg bluegrass. A community dominated by Columbia needlegrass and spike fescue would be expected here. This allotment does not meet the upland standard based on the current plant community. However, it has not been determined whether management changes within the allotment have resulted in making progress toward meeting the Standard since 1997. Ellis Upper Beaver has 3 long term monitoring transects. Monitoring data from these transects can be found in table 3-19 below. The data below shows that the bluebunch wheatgrass and western wheatgrass are stable to increasing in composition within the allotment.

Table 3-19: Long Term Composition Monitoring by Key Species

Transect	Plant Species	1997	2012
T-1	Sandberg Bluegrass	19.65	21.02
	Bluebunch wheatgrass	1.99	3.53
	Fescue	3.7	4.59
	Prairie Junegrass	10.82	0
T-2	Sandberg Bluegrass	0	46.66
	Bluebunch wheatgrass	.88	1.05
	Mutton bluegrass	14.79	5.78
	Spike Fescue	27.21	3.15
T-3	Sandberg Bluegrass	10.49	2.75
	Baltic Rush	4.19	.91
	Threadleaf sedge	6.74	0
	Western Wheatgrass	2.09	7.87
T-4	Sandberg Bluegrass	32.54	2.32
	Baltic Rush	13.9	5.74
	Threadleaf sedge	26.33	0
	Western Wheatgrass	0	5.19

Uplands in the McGraw Flat Individual Allotment do not meet the Standard. They contain plant communities that are dominated by sagebrush, Sandberg bluegrass and mutton bluegrass and lack the cool season bunchgrasses that would characterize healthy uplands.

Upland soils in the Auer Ranch Allotment (AR-1) have active pedestalling in water flow patterns. Bluebunch wheatgrass and rhizomatous wheatgrass, which would be expected on these uplands, have been largely replaced by black sagebrush and threadleaf sedge.

The Cottonwood Basin Allotment has uplands with good soil structure and stability. However they are dominated by sagebrush, phlox, and Sandberg bluegrass. They do have the deep rooted natives such as bluebunch wheatgrass and western wheatgrass that would be expected, but not in the abundance that is expected or desired.

RESOURCE CONDITIONS IN SMALL PRIVATE ALLOTMENTS MEET THE STANDARD?

YES Upland Acres = 11,683 46%
NO Upland Acres = 13,516 54%

STANDARD #4 – Wildlife and Weeds

Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

THIS MEANS THAT:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife-designated), species of special concern (BLM-designated), and other sensitive species (State of Wyoming-designated). The intent of this standard is to allow the listed species to recover and be delisted, and avoid or prevent additional species becoming listed.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Noxious weeds;
- Species diversity;
- Age class distribution;
- All indicators associated with the upland and riparian standards;
- Population trends; and
- Habitat fragmentation.

The above indicators are applied as appropriate to the potential of the ecological site.

Many species of wildlife are found in the USL, however the quality of wildlife habitat is largely driven by the condition of the rangelands. The more diversity in the upland and riparian plant communities, the greater the number of wildlife species these communities can support. As conditions deteriorate, the quality of habitat declines and wildlife may leave in search of adequate forage and cover or become adversely impacted in their capacity to maintain healthy and robust populations. Indicators such as shrub frequency and density, age class diversity, species diversity, and invasive species all contribute to the degree of wildlife use of the area and the ability of wildlife populations to maintain viable and diverse populations. Riparian area health attributes such as streambank cover, channel stability, sedimentation from erosion, and water storage capability directly impacts fish and amphibian habitat quality. Areas that do not meet the riparian or upland standards for rangeland health, will not meet the wildlife habitat standard due to a reduction in overall habitat quality.

Riparian and wetland areas represent a relatively small percentage of the overall land form in the USL, but offer the greatest potential for biodiversity. Riparian habitats typically support the greatest variety of birds and mammals due to the presence of water and the species and structural diversity of plant community. Nearly all wildlife species depend on riparian and wetland areas to varying degrees for their water, forage, and hiding cover needs. The conditions discussed under Standard #2 indicate the most riparian areas are degraded to some extent. The conditions

described have resulted in a reduction in the amount of available habitat and, subsequently, a reduction in the kinds and numbers of animals these areas can support.

As described under Standard #2, 44% of riparian areas in the USL do not meet the standard for rangeland health. With the exception of the Level Meadows allotment which met Standard #2, riparian areas generally lack the deep rooted species appropriate for the site, and exhibit downcutting and loss of soil stability in the system. Game and non-game fish species are directly impacted by the sedimentation in waters as a result from increased soil erosion. Increased sedimentation from the uplands along with bank erosion is blanketing spawning gravels, decreasing macro-invertebrate diversity, increasing turbidity and reducing the dissolved oxygen levels. In addition sediment coming from upstream is deposited in pools that are critical for fish survival during the hot summer and cold winter months. Increased sediment can result in a shallower channel, leading to increased water temperature and evaporative loss and decreased water availability.

In most cases riparian plant vigor is low, limiting the potential forage and cover the herbaceous species may provide. Streambank vegetation cover is essential for moderating water temperatures and housing macroinvertebrates used as fish food. Degraded riparian areas in the USL threatens the ability of BLM-sensitive species such as the northern leopard frog and the great basin spadefoot, and other non-sensitive amphibians, to maintain or enhance their current population numbers. Little information is known regarding the numbers of these sensitive species in the USL; however any reduction in the quality of riparian habitats could consequently lead to a decline in local population numbers.

Healthy riparian vegetation is also important for concealing and providing forage for other sensitive species such the Greater Sage Grouse which depend on these area during mid-late summer and early fall. Sage grouse utilize riparian areas extensively during late brood rearing phase of their life cycle and healthy riparian areas are critical component in maintaining population size.

Wildlife diversity in upland habitats is significantly affected by the health of the nearby riparian habitats as many species are dependent on both upland and riparian habitats to meet their forage, birthing and cover requirements. As riparian areas have dried out due to lowered water tables, the transition zones between riparian and upland habitats has become more abrupt and, in some places, nonexistent. These areas typically receive intensive grazing due to their proximity to water, so vegetation composition is significantly affected. Many species of nongame birds and mammals are dependent on these transition zones to meet their life cycle demands. Degradation of this type of habitat has probably resulted in population declines for some nongame species.

Upland habitats that meet Standard #3 should provide the necessary habitat requirements for the animals dependent on them. These areas have appropriate plant and structural diversity for the site, good plant vigor, less bare ground and healthier shrub communities. It is expected that wildlife species richness is appropriate for the areas that meet this health standard.

In general, the shrub community in the USL has little age class diversity, low forage production, and poor plant vigor. This could be due to long term drought or, lack of fire frequency The

quality of sagebrush will directly affect populations of sagebrush obligate species, including big game, migratory and game birds, small mammal, and reptiles. Although the frequency of sagebrush has increased across the USL, overall sagebrush health and production is static to downward from previous years in many areas Four permanent browse transects are located within the USL, 2 in the Big Pasture allotment and 2 in the Cottonwood Basin allotment. These transects are used to monitor age class, species diversity and canopy cover of the associated sagebrush community. Monitoring results indicate a lack of age class diversity and a decline in average canopy cover. Browse transect #28 is located in the Big Pasture allotment shows limited to no species or age class diversity consisting entirely of mature and decedent Wyoming Big Sagebrush. Browse transect # 7-1 is comprised of only two shrub species (Big Sage and Green Rabbitbrush) and shows no age class diversity. Browse transect #1 in Cottonwood Basin also shows little species diversity with Big Sage and Greasewood providing very little age class distribution. Browse transect # 2 is comprised of Rubber Rabbitbrush, Big Sage, Fringe Sage, and Black Sage and shows no age class diversity. If sagebrush health continues to decline, populations of sagebrush obligate birds and mammals on the BLM-Wyoming Sensitive Species list will also decline. These species include logger-head shrike, Brewer's sparrow, sage thrasher, sage sparrow, and greater sage grouse. See Appendix 2 Table B for further information of Long Term Monitoring and Sagebrush health.

Trend count information from the WGFD has shown a decrease in pronghorn and mule deer fawn production in recent years in herds utilizing the USL. The extensive drought during the last several years has exacerbated the low fawn numbers. Low fawn numbers can be attributed to the health of the habitat throughout the herd unit including the types and amounts of available forage, time of year forage is available and the nutrient quality of the forage. Poor plant production, species composition, and sagebrush health of these rangelands during drought years have contributed to a decline in fawn recruitment.

Pronghorn and mule deer are found throughout the USL with population numbers for herd units within the USL well below population objectives established by the WGFD. Habitats are relatively intact with localized energy development and agricultural developments scattered throughout the herd units and urban/rural residential development occurring primarily near Lander. Based on WGFD's 2013 data, pronghorn populations for the 3 herd units (Beaver Rim, Sublette, and Red Desert) overlapped by the USL are each approximately 30% below their respective population objectives. The two largest mule deer herd units (South Wind River and Sweetwater) intersecting the USL have populations averaging 57% below the unit's objective. A small portion of the USL falls within the Beaver Rim Herd Unit for mule deer which is approximately 39% below its population objective.

Pronghorn and mule deer rely on big sagebrush habitat, in addition to other plant communities like saltbush steppe, greasewood, short grasslands, and open juniper woodlands. The age structure, composition and condition of the shrub communities can affect the carrying capacity of the habitat, particularly during the winter months. Pronghorn and mule deer diets during the winter consist primarily of big sagebrush, bitterbrush and other shrubs while spring and summer diets include higher amounts of forbs and grasses. During the spring and early summer months, pronghorn and mule deer are dependent on a diverse composition of forbs and grasses for their nutritional requirements. Rangelands not meeting Standard #3 do not support the diversity of

grasses and forbs needed to nourish fawns and lactating females. The lack of herbaceous or browse forage production across the herd unit during drought years has resulted in poor body condition of animals as they head into winter which may have contributed to elevated mortality and low fawn recruitment in recent years.

Severe drought conditions, beginning with minimal snowfall in winter 2011-12 and continuing with almost no precipitation during the spring and summer of 2012 resulted in an almost complete lack of herbaceous or browse forage production across the USL. During this time, poor body condition was observed in many pronghorn and mule deer by late-summer, especially lactating females attempting to raise fawns into fall. Forage conditions improved a bit in 2013 from a slight increase in precipitation which helped to provide forage and increase animal body condition and winter survival. Due to abnormally high amounts of precipitation over the past 2 growing seasons forage conditions have improved resulting in better animal body condition and higher recruitment levels. and fawn antelope and mule deer recruitment has improved.

All of the USL except allotments east of the Sand Draw Highway lies within the Lander Herd Unit for moose (Appendix 3- Wildlife Maps) Moose using willow riparian areas and adjacent shrublands and conifer stands have experienced a general population decline beginning in 1995. The WGFD estimates the moose herd is approximately 50% below its objective. Since moose diets consists of mostly shrubs and trees such as willow and aspen, riparian areas not meeting Standard #2 are not providing high quality habitat needed to support and grow moose populations.

Most elk populations across the region are higher than their population objectives. The USL intersects the South Wind River and Green Mountain Herd Units (Appendix 3- Wildlife Maps). The WGFD has been unsuccessful in determining current population sizes due to suspected high levels of elk movement to other herd units, but the herds are recognized to be over their population objectives of 3,300 and 500 elk, respectively. Elk prefer areas with Historical Climax Plant Communities or other, similar plant communities that would provide abundant grass for grazing. Like pronghorn and mule deer, elk rely on plant communities having a diversity of forbs and grasses in the understory to meet their dietary requirements. Because many of the rangelands in the USL fail Standard #3, these rangelands are not providing exceptional quality elk habitat. However, due to the large home range of elk, these animals are capable of finding the best available habitats within their home ranges and are able to prosper even when the vegetative conditions in the uplands fail the standard.

Greater sage-grouse are monitored each year throughout the area by WGFD and BLM biologists to determine the activity status and peak male numbers at each lek. There are 17 leks within the USL with the majority of the USL in greater sage-grouse priority habitat (Core Area). According the WGFD, the average number of males on leks peaked throughout the Wind River/Sweetwater River Sage Grouse Local Working Group Area at approximately 76 males in the mid-2000s and dropped to an average of 22 males per lek in 2014. Nesting and early brood-rearing habitats are considered to be the most important in chick survival which ultimately leads to population growth. With 2 years of adequate or surplus precipitation during the growing season, residual vegetative cover during the spring has helped to conceal nests from predators and provided

hiding cover and adequate food for chicks. The result has been an upward trend in number of sage grouse on leks between 2013-2015.

As discussed under Standard #3, many upland plant communities do not have the grass and forb diversity and density expected for the site that are essential for the breeding, nesting, and foraging requirements of greater sage-grouse. Chicks require a diet rich in forbs and insects for survival and greater sage-grouse are dependent upon herbaceous plants under and around individual sagebrush plants to hide their nests/young from predation. In most cases, a diversity of plants is usually needed to get a diversity of insects. Optimum early brood-rearing habitat consists of sagebrush stands 16 to 32 inches tall with a 10-25% canopy cover and an herbaceous understory of 15% grass and 10% forbs. The lack of grass and forb diversity, the abundance of short-stature grasses replacing taller bunchgrasses in the plant communities, the presence of large amounts of bare ground in some areas, and lack of adequate herbaceous cover described under Standards No.1 and No.3 impact the quantity and quality of suitable nesting and brood-rearing habitat. As stated earlier, habitat conditions have improved in 2014 and 2015 resulting in a greater nest success and brood survival rate and subsequent increase in population size.

Noxious Weeds

The Upper Sweetwater Landscape is relatively free of noxious weeds except along travel corridors and waterways. Many weeds are confined to the Sweetwater River and areas with higher occupancy of people. However, any acres affected by noxious weeds cannot meet this Standard. It is estimated that 95 acres of public land in the Upper Sweetwater Landscape are affected by Canadian Thistle, Russian Knapweed, Whitetop, Black Henbane, Common Mullen and Leafy Spurge, Perennial Pepperweed. Canadian Thistle and Russian Knapweed are the most predominant of the weeds in the Landscape. While the other weed listed are in smaller isolated patches. It is estimated that 543 total acres within the Upper Sweetwater Landscape are affected. These weeds are designated noxious weeds by the Wyoming Weed and Pest Control.
Lander Field Office works in partnership with Fremont County Weed and Pest to manage noxious weeds.

Wild Horses

The Dishpan Butte Herd Management Area (HMA) is made up of the Big Pasture and Dishpan Butte Allotments. The appropriate management levels for the Dishpan HMA are between 50 and 100. These horses are managed under the Wild Free Roaming Horse and Burro Act. Wild horse numbers are currently above the AML levels for this HMA. Wild horses remain in good overall body condition and continue to grow in number at a rate of approximately 20% per year. Wild horses have the potential to adversely impact the standards within the Dishpan Butte HMA, however, the level of impact is impossible to quantify given the current season of use and grazing pattern by livestock within these allotments. As such this report does not try to distinguish the impacts of wild horses from livestock, but acknowledges that as wild horse numbers exceed the AML for the HMA, there is a greater opportunity for wild horse use to adversely impact the standards. Wild horse HMA's, their AML levels, and management have been evaluated as part of the Lander RMP. The Lander Field Office continues to approach wild horse management in accordance with the management actions established as part of the RMP

within the constraints of current budgets as well as the limits of BLM's short and long term holding facilities.

Habitat Conditions in the Upper Sweetwater Landscape

Range conditions on upland and riparian habitats are generally stable or improving in areas. Native plant species are still present and weeds, although present in some areas, are in isolated patches with very limited distribution. Modifications to habitat from developments on private land in mixed land ownership areas have been minimal. In general, the shrub community in the Upper Sweetwater Landscape has little age class diversification to support long term health of the big game animals and other sagebrush obligate species. While we see an overall increase of sagebrush plants by 50-70 % while the overall sagebrush production is down to static in composition from past years readings. See Appendix 2- Table B for further information of Long Term Monitoring and Sagebrush health.

Acres that do not meet Standard #2 and Standard #3 due to the lack of proper functioning condition and available forage and cover will also not meet Standard #4 due to failure to provide adequate wildlife diverse optimum habitat.

Atlantic City Common

RESOURCE CONDITIONS IN ATLANTIC CITY COMMON ALLOTMENTS MEET THE STANDARD?
YES Acres = 1,136 3%
NO Acres = 37,246 97%
UNKNOWN Acres = 0

Beaver AMP

RESOURCE CONDITIONS IN BEAVER AMP ALLOTMENTS MEET THE STANDARD?
YES Acres = 0
NO Acres = 8, 958 100%
UNKNOWN Acres = 0

Big Pasture

RESOURCE CONDITIONS IN BIG PASTURE ALLOTMENTS MEET THE STANDARD?
YES Acres = 59,700 78%
NO Acres = 16,390 22%
UNKNOWN Acres = 0

Dishpan Butte

RESOURCE CONDITIONS IN DISHPAN BUTTE ALLOTMENTS MEET THE STANDARD?

YES Acres = 3,578	23%
NO Acres = 11,016	72%
UNKNOWN Acres =661	4%

Flagg AMP

RESOURCE CONDITIONS IN FLAGG AMP ALLOTMENTS MEET THE STANDARD?

YES Acres = 11	< 1%
NO Acres = 11,463	99%
UNKNOWN Acres =	

Level Meadows

RESOURCE CONDITIONS IN LEVEL MEADOWS ALLOTMENTS MEET THE STANDARD?

YES Acres = 1806	56%
NO Acres = 330	10%
UNKNOWN Acres = 1113	34%

McGraw Flat Common

RESOURCE CONDITIONS IN MCGRAW FLAT COMMON ALLOTMENTS MEET THE STANDARD?

YES Acres = 6,881	59%
NO Acres = 4,324	38%
Unknown = 427	3%

Silver Creek

RESOURCE CONDITIONS IN SILVER CREEK COMMON ALLOTMENTS MEET THE STANDARD?

YES Acres = 4,844	15%
NO Acres = 26,379	80%
UNKNOWN Acres = 1,718	5%

Other Small Allotments

RESOURCE CONDITIONS ON OTHER SMALL ALLOTMENTS MEET THE STANDARD?

YES Acres = 11,573	46%
NO Acres = 13,577	54%
UNKNOWN Acres =10	<1%

STANDARD #5 – Water Quality

Water quality meets state standards.

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming's Water Quality Rules and Regulations*. The latter regulations contain Quality Standards for Wyoming Surface waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind of substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Chemical characteristics (e.g., pH, conductivity, dissolved oxygen);
- Physical characteristics (e.g., sediment, temperature, color);
- Biological characteristics (e.g., macro- and micro-invertebrates, fecal coliform, and plant and animal species).

RESOURCE CONDITIONS IN THE UPPER SWEETWATER LANDSCAPE MEET THE STANDARD? UNKNOWN

RATIONALE: The WYDEQ classifies surface waters within the State of Wyoming under chapter 1 of the Wyoming Water Quality Rules and Regulations. These classifications are broken out into two parts defined as the "primary classifications" and the Wyoming Game and Fish Department "streams and lakes inventory". Waters classified under the primary classification table include waters found on the USGS 1:500,000 scale hydrologic map of Wyoming or have been specifically classified by the WYDEQ. Waters classified under the WYGF streams and lakes inventory are based on the presence or absence of fish. All the main sources of surface water within the Upper Sweetwater Landscape have been classified under these three portions of the water quality rules. Except for class 1, waters are classified based on their designated uses. Class 1 designations are based on value determinations rather than use support and are protected for all uses in existence at the time or after designation. The following table defines the designated uses for waters located within the allotment.

Surface Water Classes and Use Designations

Stream Classification	Drinking Water	Game and Fish	Non-Game and Fish	Fish Consumption	Other Aquatic Life	Recreation	Wildlife	Agriculture	Industry	Scenic value
1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2AB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3B	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Class 1 waters are afforded the highest levels of protection by the WYDEQ. According to Chapter 1 of the Wyoming Water Quality Rules and Regulations, "*Class 1 waters are afforded a level of antidegradation protection which is a functional equivalent of EPA's tier 3 concept.*" Tier 3 antidegradation protections require "*maintenance of existing quality with no consideration of assimilative capacity or economic or social development.*"

Class 2AB stream systems protected for all use designations. These systems are afforded the highest levels of protection by the WYDEQ. According to Chapter 1 of the Wyoming Water Quality Rules and Regulations "*The department must also ensure that the highest statutory and regulatory requirements for all new and existing point sources and all cost effective and reasonable best management practices for nonpoint sources have been achieved.*"

Class 3B systems and are not protected for the designated use of drinking water, game and fish, non-game and fish, or fish consumption. These systems generally do not require the same level of protection as Class 2AB systems. The level of protection for these systems is focused on "*maintaining existing uses and may allow lowering water quality as long as the established criterion for any parameter is not exceeded*" according to the WYDEQ.

Section 303(d) of the Clean Water Act requires States to identify a list of surface waters in which effluent levels outlined in Section 301 are not effective in attaining the designated uses. Currently none of the systems located in the allotment appear on the 303(d) list as impaired water bodies in non-attainment of their designated uses.

There are several management actions and upland rangeland health indicators that could have potential adverse impacts on water quality. The associated waste production and hoof action of livestock grazing has the potential to affect water quality through the introduction of fecal coliform and increased sedimentation in the system. Reductions in upland soil stability and lack of stabilizing vegetation similarly may allow for increased sedimentation and turbidity in surface

water. Shifts in riparian vegetative composition to upland species may potentially affect soil chemistry through oxidation of hydric soils and the appearance of accumulated salts on the soil surface. Many of these impacts are prevalent throughout the allotment in and adjacent to riparian areas and likely are impacting water quality to some degree. However, the degree to which these impacts are affecting water quality is unknown without additional water quality monitoring data. Therefore, the water quality standard remains unknown.

STANDARD #6 – Air Quality

Air quality meets state standards.

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming Air Quality Rules and Regulations*.

INDICATORS MAY INCLUDE BUT ARE NOT LIMITED TO:

- Particulate matter;
- Sulfur dioxide;
- Photochemical oxidants (ozone);
- Volatile organic compounds (hydrocarbons);
- Nitrogen oxides;
- Carbon monoxide;
- Odors; and
- Visibility.

RESOURCE CONDITIONS IN THE UPPER SWEETWATER LANDSCAPE MEET THE STANDARD? YES

RATIONALE: WYDEQ maintains a network of air quality monitoring stations throughout the state. The nearest air quality monitoring stations to the Upper Sweetwater Landscape are located on South Pass and in Casper. These stations monitor several different air quality parameters including ozone, nitrogen dioxide, and fine particulate matter against the State and National air quality standards. The most recent monitoring data indicates that air quality is well within the standards for all the air quality parameters measured at each station. Communication with the WYDEQ air quality division indicates Fremont County is in attainment of all State and National ambient air quality standards. Therefore, the air quality standard is met.

References

Cagney,J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rahsford, M.A. Smith, J. Williams. 2010. Grazing Influence, Objective Development, and Management in Wyoming's Greater Sage-Grouse Habitat. University of Wyoming Cooperative Extension Bulletin B-1203

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.

Clark, Ronnie. 1980. *Erosion Condition Classification System*. BLM Technical Note No. 346. USDI Bureau of Land Management. Denver, Colorado.

United States Department of Agriculture. Natural Resources Conservation Service. 1993. *Cooperative Soil Survey of the Fremont County, East Part and Dubois Area, Wyoming*. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

United States Department of the interior. Bureau of Land Management 1998. Riparian Area Management TR1737-15. *A User Guide to Assessing proper Functioning Condition and the Supporting Science for Lotic Areas*. Nation Applied Resource Sciences Center. Denver, Colorado.

United States Department of the interior. Bureau of Land Management 1999. Riparian Area Management TR1737-15. *A User Guide to Assessing proper Functioning Condition and the Supporting Science for Lentic Areas.* Nation Applied Resource Sciences Center. Denver, Colorado.

Van Haveren, Bruce P. 2000. *Ground Cover Dynamics in a Sagebrush Steppe Community*. BLM Resource Notes 19:1-2. USDI Bureau of Land Management. Denver, Colorado.

Van Haveren, Bruce P. 2001. *Landscape Stability Indicators for Sagebrush Steppe Ecosystems*. BLM Resource Notes 44:1-2. USDI Bureau of Land Management. Denver, Colorado.

Ecological Site Descriptions. (n.d.). Retrieved 2012, from USDA Natural Resources Conservation Service: https://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=Reference Sheet

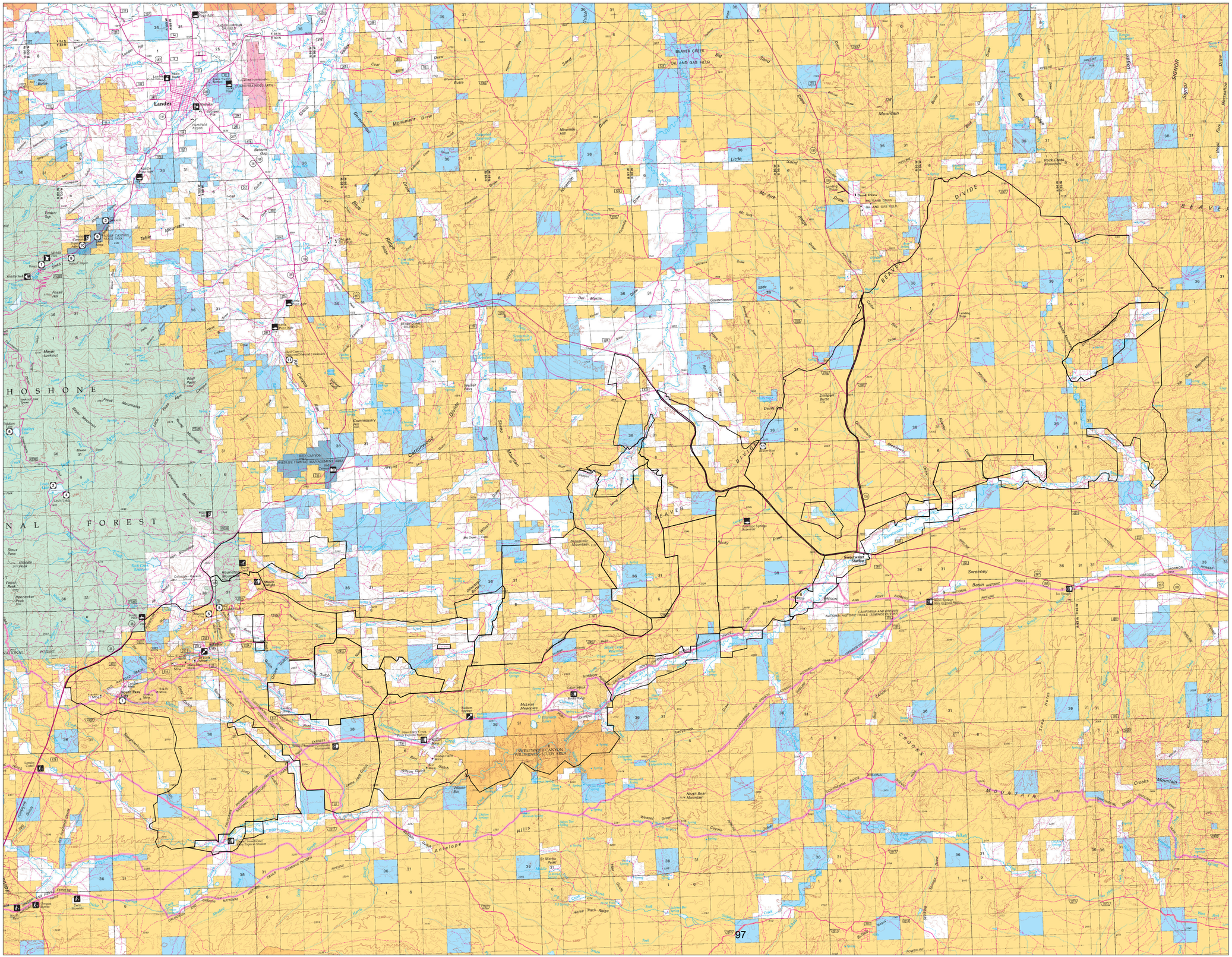
Pellant, M. S. (2005). *Interpreting Indicators of Rangeland Health (Version4) Technical Reference 1734-6.* Denver, Colorado: USDI Bureau of Land Managment. .

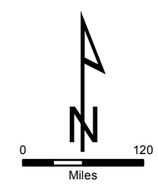
Appendix 1:

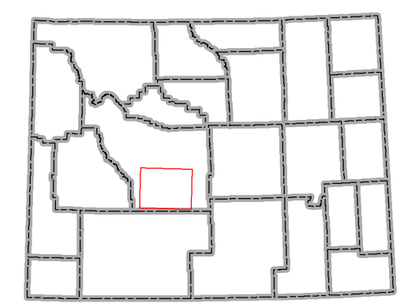
Surface Ownership Map

Block 4 Ownership 1:240,000

BLOCK 4







Date: 6/11/2014

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Appendix 2:

Table A: Allotment Information

Table B: Sagebrush Long Term Monitoring

Table A: Allotment Information

Allotment Number	Allotment Name	BLM Acres in USL*	Kind of Animals	Grazing Season	% Public Land	BLM AUMS	Management Category
1901	Atlantic City Common	38,382	Cattle	5/23- 9/30	77%	7,462	I
1924	Atlantic City Lower Fenced	125	Cattle	5/1- 11/30	41%	58	C
1923	Atlantic City Upper Fenced	214	Cattle	5/1- 11/30	25%	81	C
1939	Auer Ranch	648	Cattle	3/1- 4/30, 11/1- 2/28	36%	93	C
1915	Beaver AMP	8,958	Cattle	5/1- 10/31	79%	2,049	I
1703	Big Pasture	76,094	Cattle	5/1- 11/7	92%	11,916	I
1902	Cottonwood Basin	7,625	Cattle	4/20- 10/31	57%	793	I
1716	Dishpan Butte	15,255	Cattle	5/15- 7/31	90%	2,426	I
1905	Ellis Upper Beaver	2,198	Cattle	5/16- 9/30	87%	550	I
1701	Flagg AMP	11,474	Cattle	5/1-11/30	93%	1,359	I
1702	Flagg Individual	298	Cattle	12/1-2/28	15%	51	C
1922	French George Crossing	626	Cattle	5/16- 9/30	36%	146	I
1711	Hay Meadow Pasture	316	Cattle	3/1-5/14, 9/1-2/28	17%	50	C
1921	Level Meadows	3,250	Cattle	6/1- 10/30	45%	701	I

1709	Long Creek Pasture	2,567	Cattle	4/1-9/30, 11/16-12/15	70%	250	I
1928	Lower Ellis Ranch	321	Cattle	9/15- 12/31	36%	321	C
1914	McGraw Flat Common	11,632	Cattle	5/1- 10/31	78%	1,744	I
1913	McGraw Flat Individual	1,034	Cattle	6/1- 9/30	62%	206	I
1705	Myers Fenced	1,640	Cattle	4/6- 4/30	95%	171	I
1920	Salisbury AMP	5,389	Cattle	5/16- 9/30	78%	996	I
1903	Silver Creek Common	32,941	Cattle	5/15- 10/31	86%	4,145	I
1706	Trent and Home Place	427	Cattle	11/16 -2/28	33%	72	M
1927	Upper Ellis Ranch	715	Cattle	9/15- 12/31	33%	229	C
1713	Whitlock Fenced	1,057	Cattle	4/1- 4/30	78%	126	I

TABLE B: Sagebrush Long Term Monitoring

Atlantic City Common					
	Transect	Composition		Frequency	
Year:		1994	2012	1994	2012
	T-1	68	60	59	88
	T-2	68	38	14	28
	T-3	68	71	21	53
	T-4	68	54	29	56
	T-5	77	49	36	81

Big Pasture					
	Transect	Composition		Frequency	
Year:		1982	2012	1982	2012
	T-1	70	72	24	77
	T-3	47	46	23	84
	T-4	11	47	7	34
	T-5	54	60	40	83
	T-6	36	43	81	65
	T-8	39	61	19	94
	T-9	50	64	31	67
	T-10*	27	42	18	32
	T-11	46	57	18	51
	T-12	57	45	33	71
	T-13	41	65	23	67
	T-14	63	59	64	92
	T-15	46	62	20	66
	T-16	41	67	24	77
	T-17	47	61	17	62
	T-18	26	39	42	58
	T-19	35	36	23	42

* Black Sage

Cottonwood Basin					
	Transect	Composition		Frequency	
Year:		1982	2012	1982	2012
	T-1 *	46	52	29	66
	T-2	26	47.1	14	49

* Inclues Big Sage and
Black Sage

Dishpan Butte					
	Transect	Composition		Frequency	
Year:		1987	2012	1987	2012
	T-1	56	50	22	67
	T-2	34	32	16	39
	T-3	50	55	21	68
	T-4	61	57	35	86
	T-5	61	55	29	68

McGraw Flat Common					
	Transect	Composition		Frequency	
Year:		1994	2012	1994	2012
	T-1	85	80	27	78
	T-2	7	66	21	90
	T-3	81	76	47	95
	T-4	56	64	16	27
	T-5	83	71	23	70
	T-6	61	72	16	71

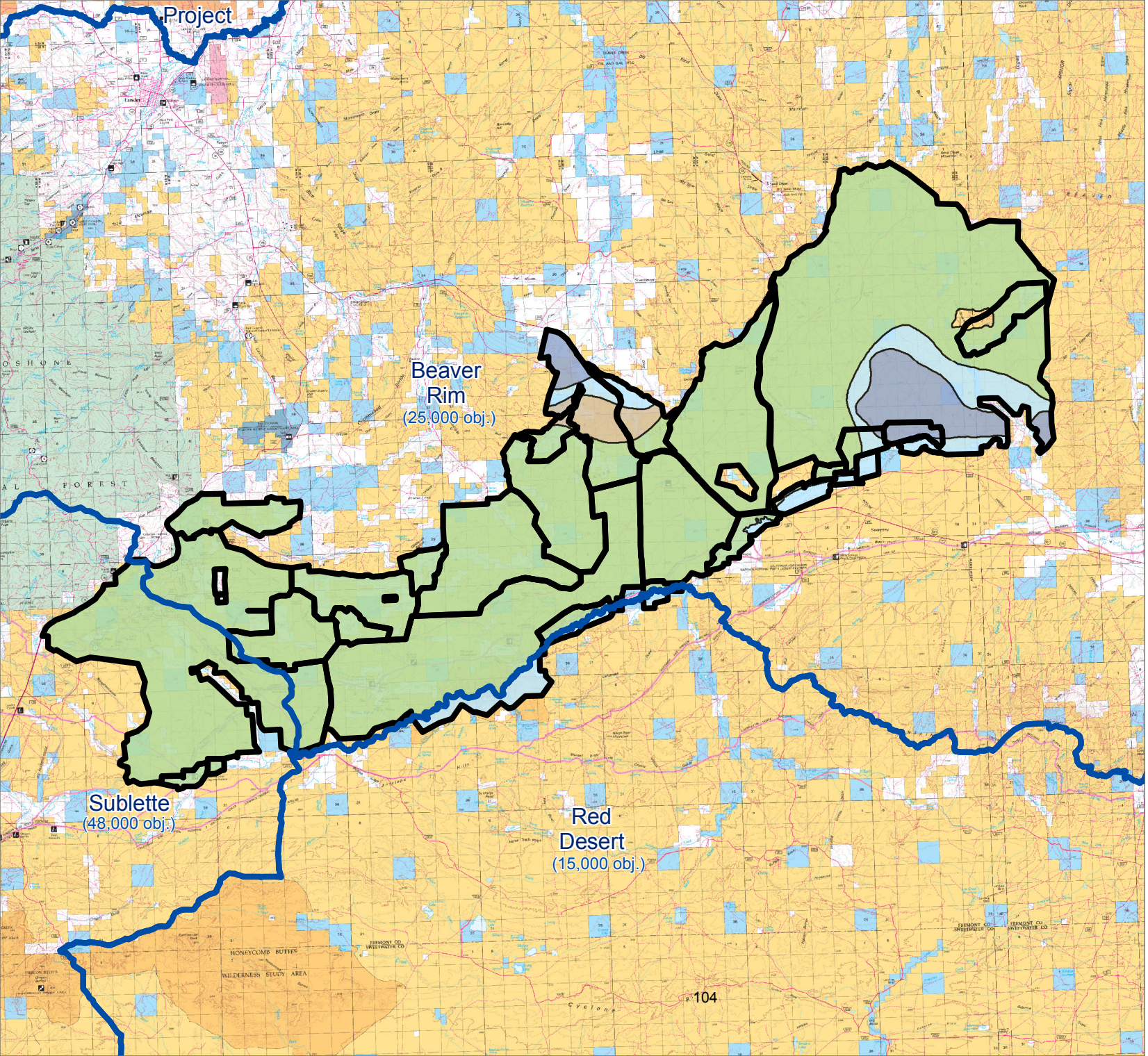
Silver Creek					
	Transect	Composition		Frequency	
Year:		1994	2012	1994	2012
	T-1*	86	61	51	103
	T-2	70	54	13	69
	T-3	92	79	21	81
	T-4	59	56	43	77
	T-5	81	71	26	74
	T-6	69	55	24	58
	T-7	77	66	34	66
	T-8	71	58	15	71.1
	T-9	71	55	32	57.4

*Includes Big Sage and Black Sage

Salisbury AMP					
	Transect	Composition		Frequency	
Year:		1988	2012	1988	2012
	T-1	41	61	34	72
	T-2	36	34	58	57

Appendix 3:

Wildlife Maps



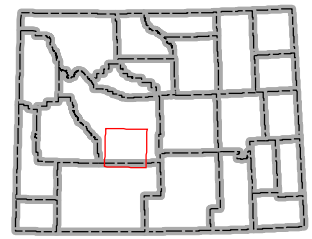
Upper Sweetwater Standards & Guidelines

Pronghorn

- Allotment Boundary
- Pronghorn Herd Areas
- Crucial Winter Range
- Winter Year-Long Range
- Year-Long Range
- Spring, Summer, Fall Range

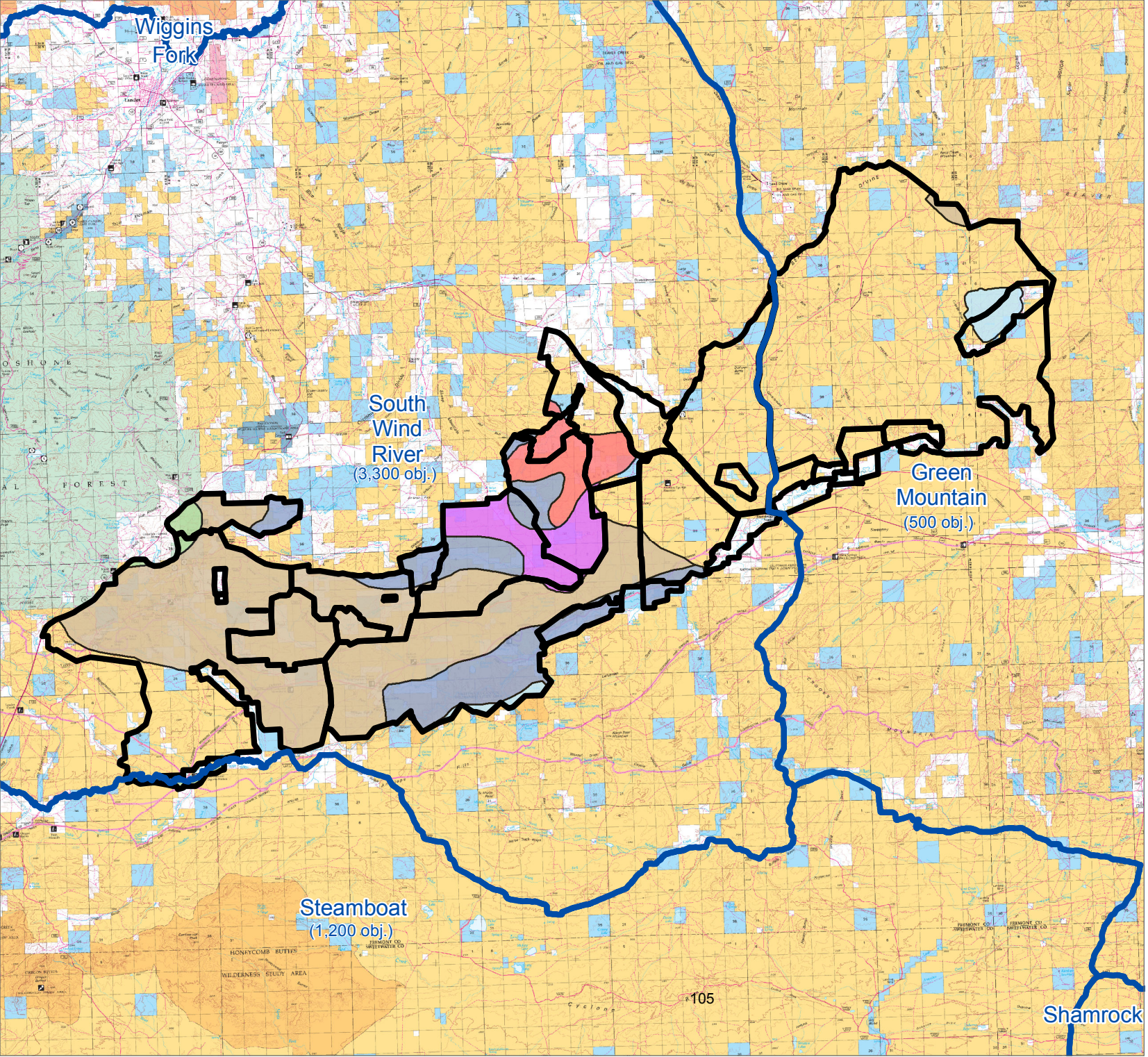
N

0 4
Miles



Date: 5/6/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



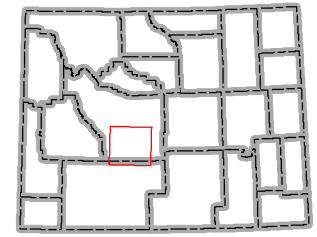
Upper Sweetwater Standards & Guidelines

Elk

- Allotment Boundary
- Elk Herd Areas
- Crucial Winter Range
- Winter Year-Long Range
- Year-Long Range
- Spring, Summer, Fall Range
- Severe Winter Range
- Winter Range

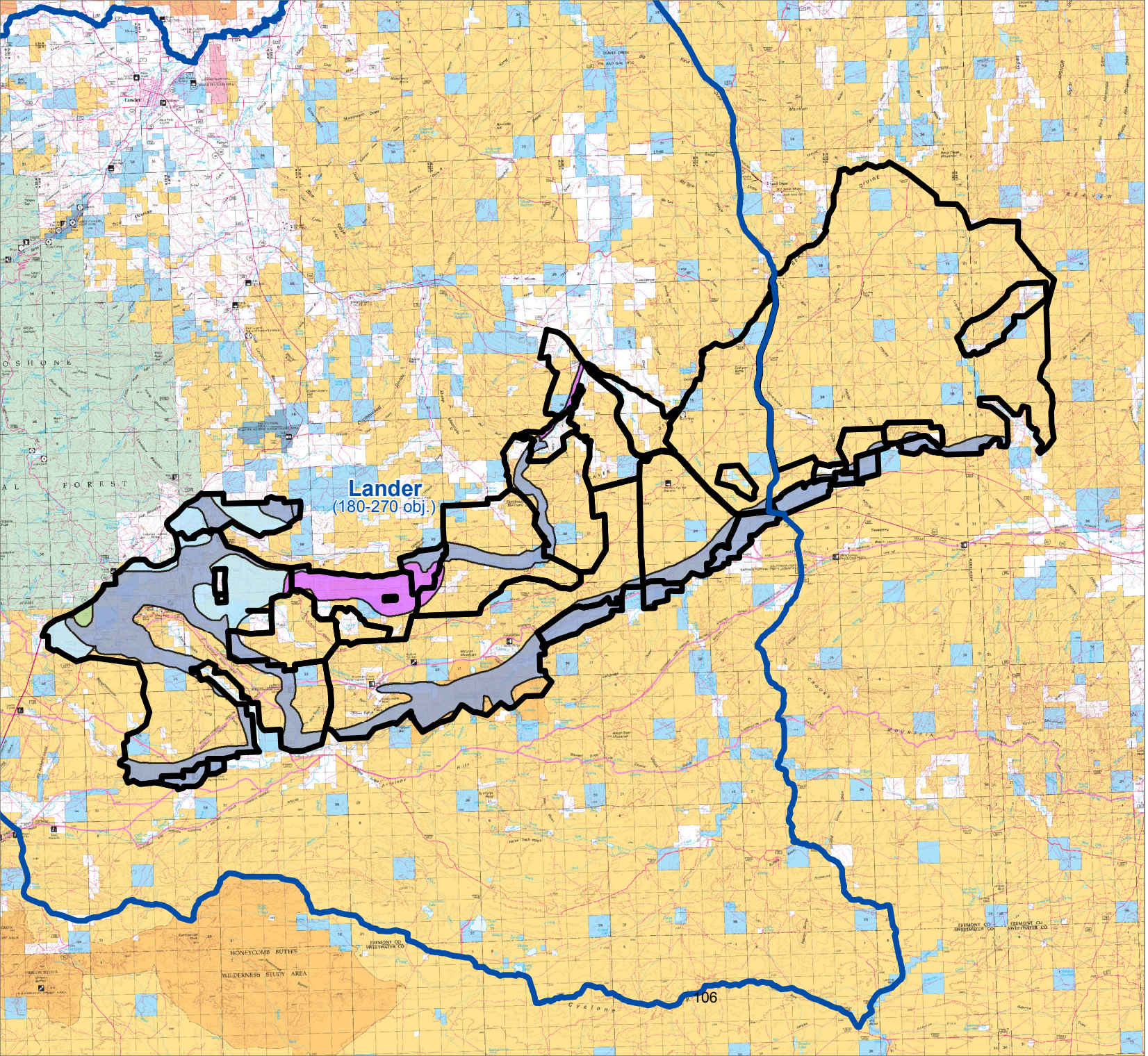
N

0 4
Miles



Date: 5/6/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



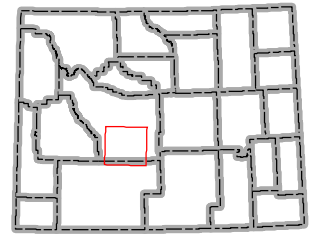
Upper Sweetwater Standards & Guidelines

Moose

- Allotment Boundary
- Moose Herd Areas
- Crucial Winter Range
- Winter Year-Long Range
- Winter Range
- Spring, Summer, Fall Range

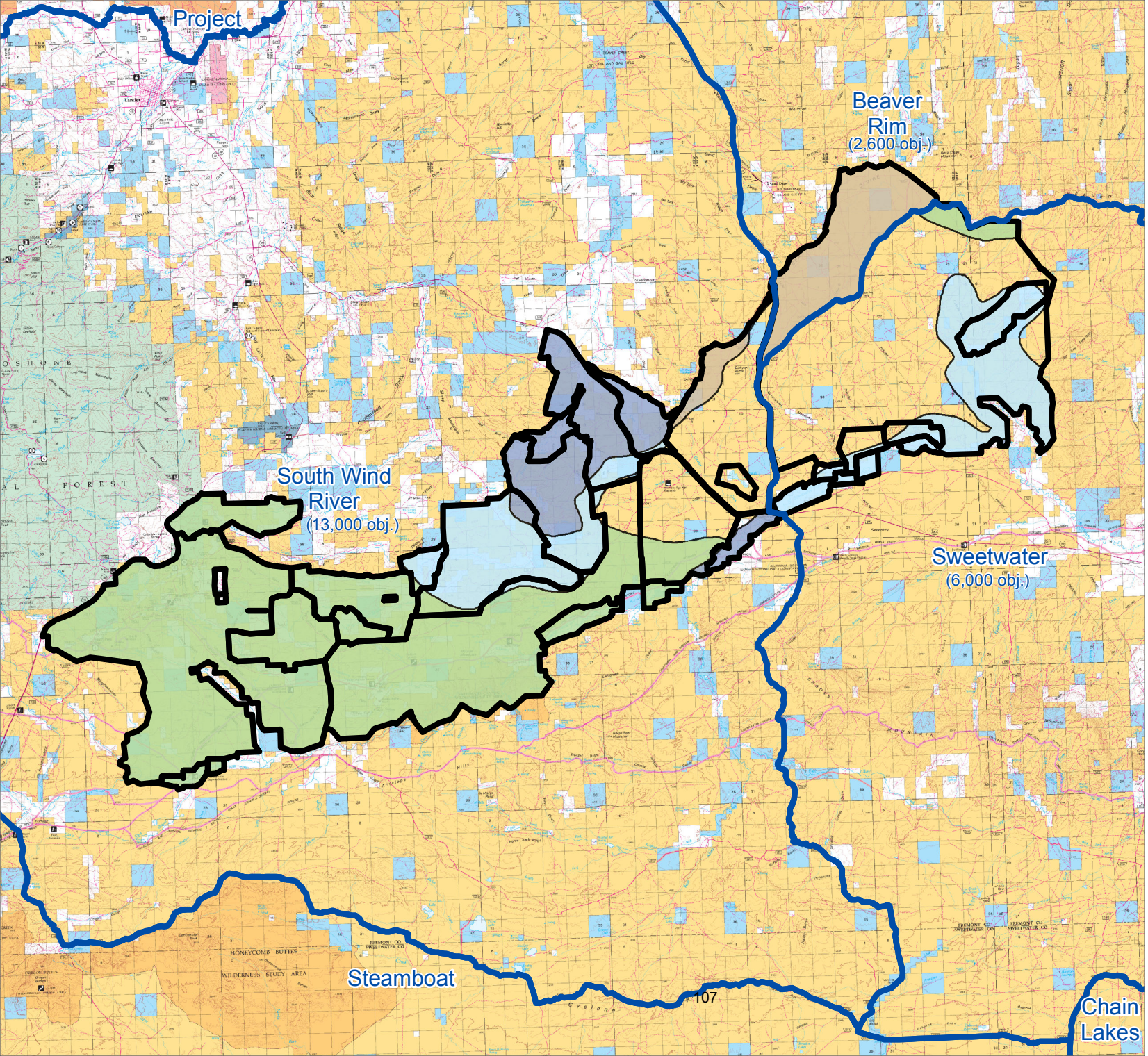
N

0 4
Miles



Date: 5/6/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



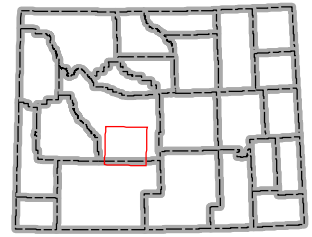
Upper Sweetwater Standards & Guidelines

Mule Deer

- Allotment Boundary
- Mule Deer Herd Areas
- Crucial Winter Range
- Winter Year-Long Range
- Year-Long Range
- Spring, Summer, Fall Range

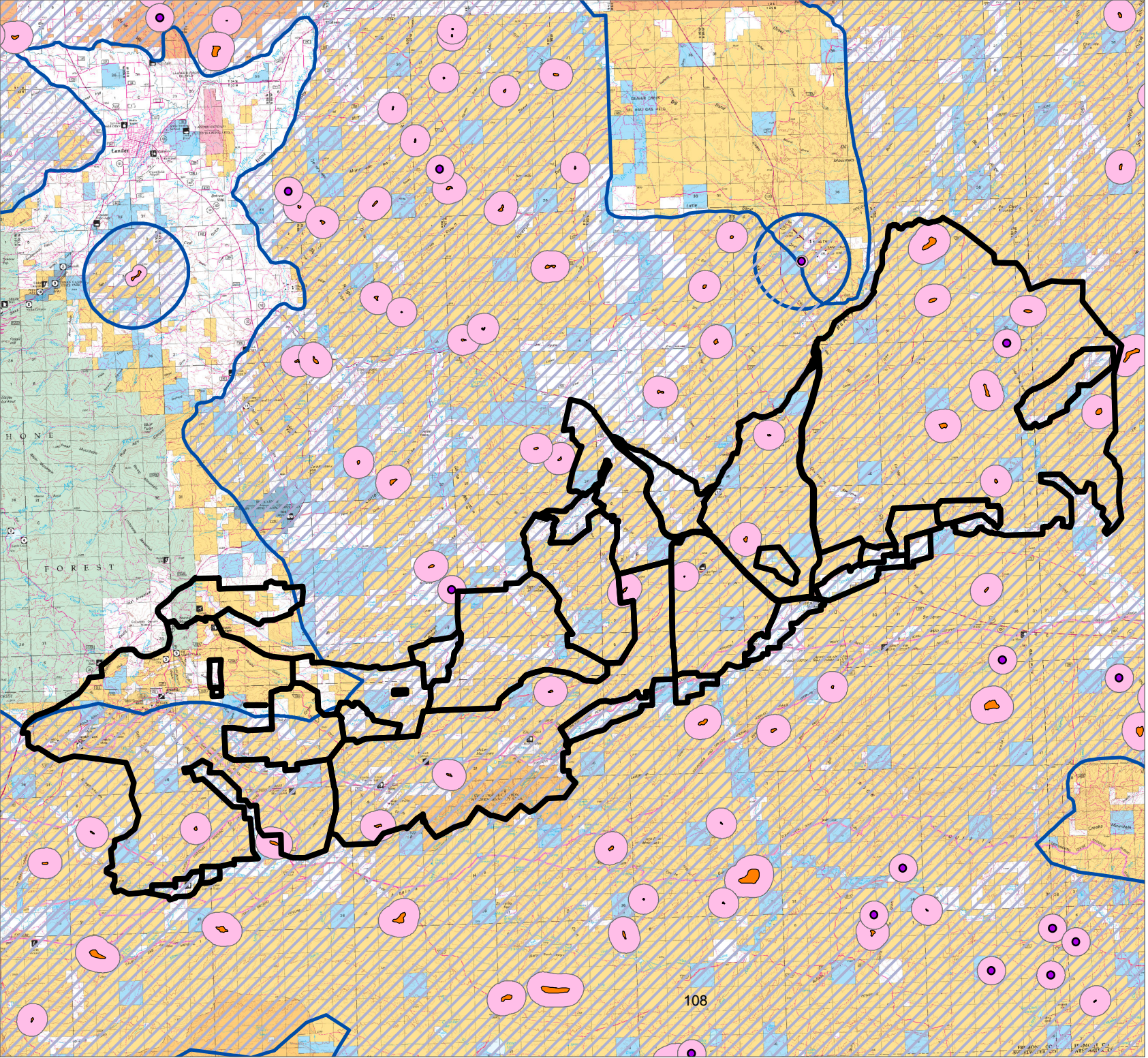
N

0 4
Miles



Date: 5/6/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



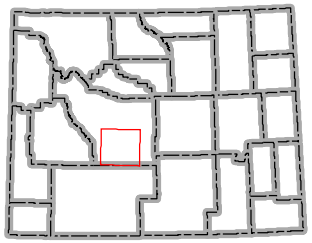
Upper Sweetwater Standards & Guidelines

Sage Grouse

- Allotment Boundary
- Sage Grouse Nesting Buffer
- Lek buffer
- Lek perimeter
- Lek with no perimeter

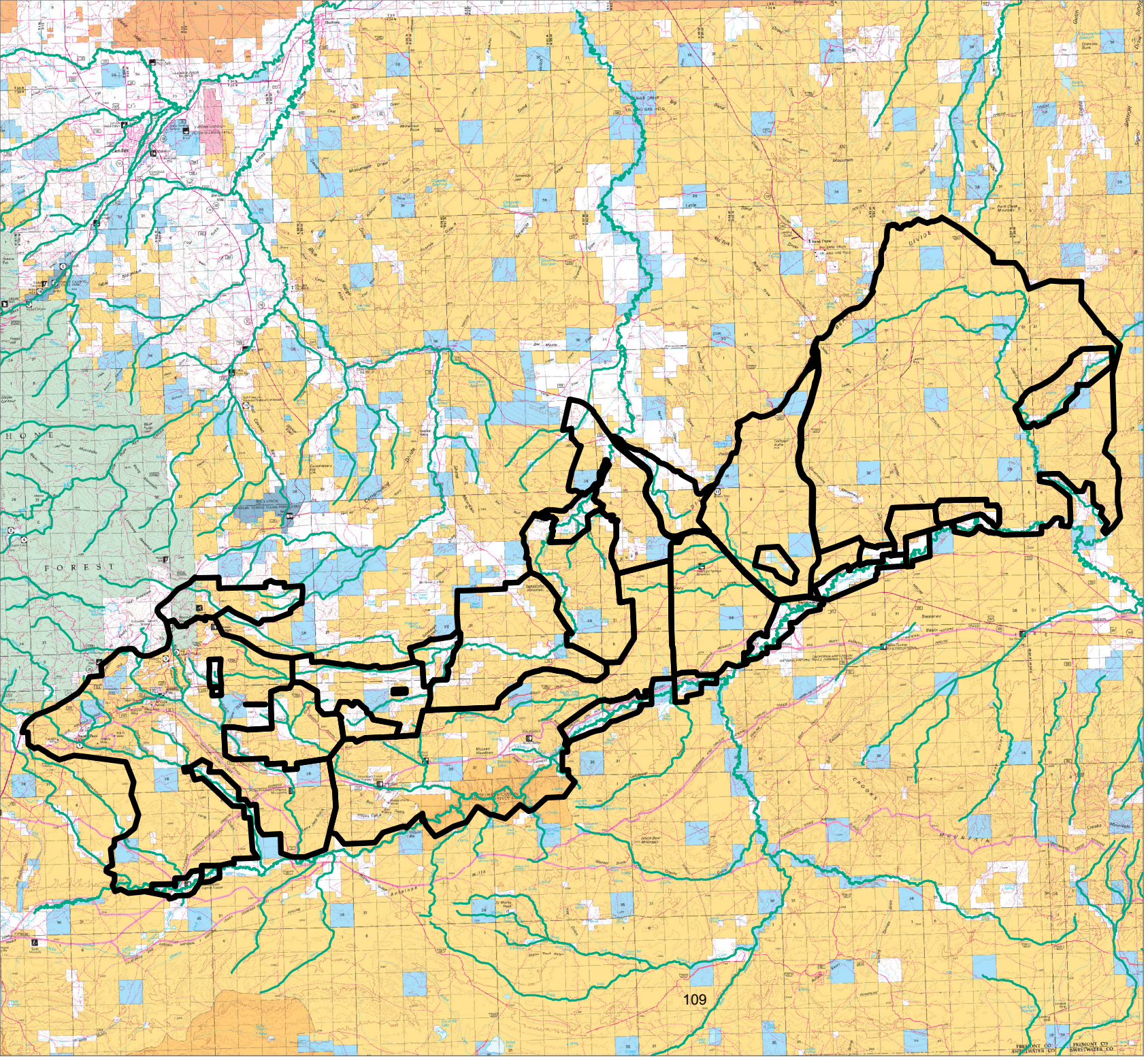
N

0 4
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Streams with Fish

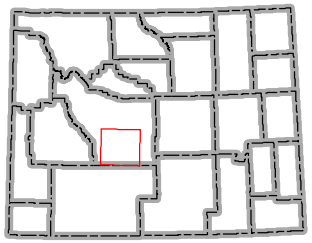
Allotment Boundary

Streams with Fish

N

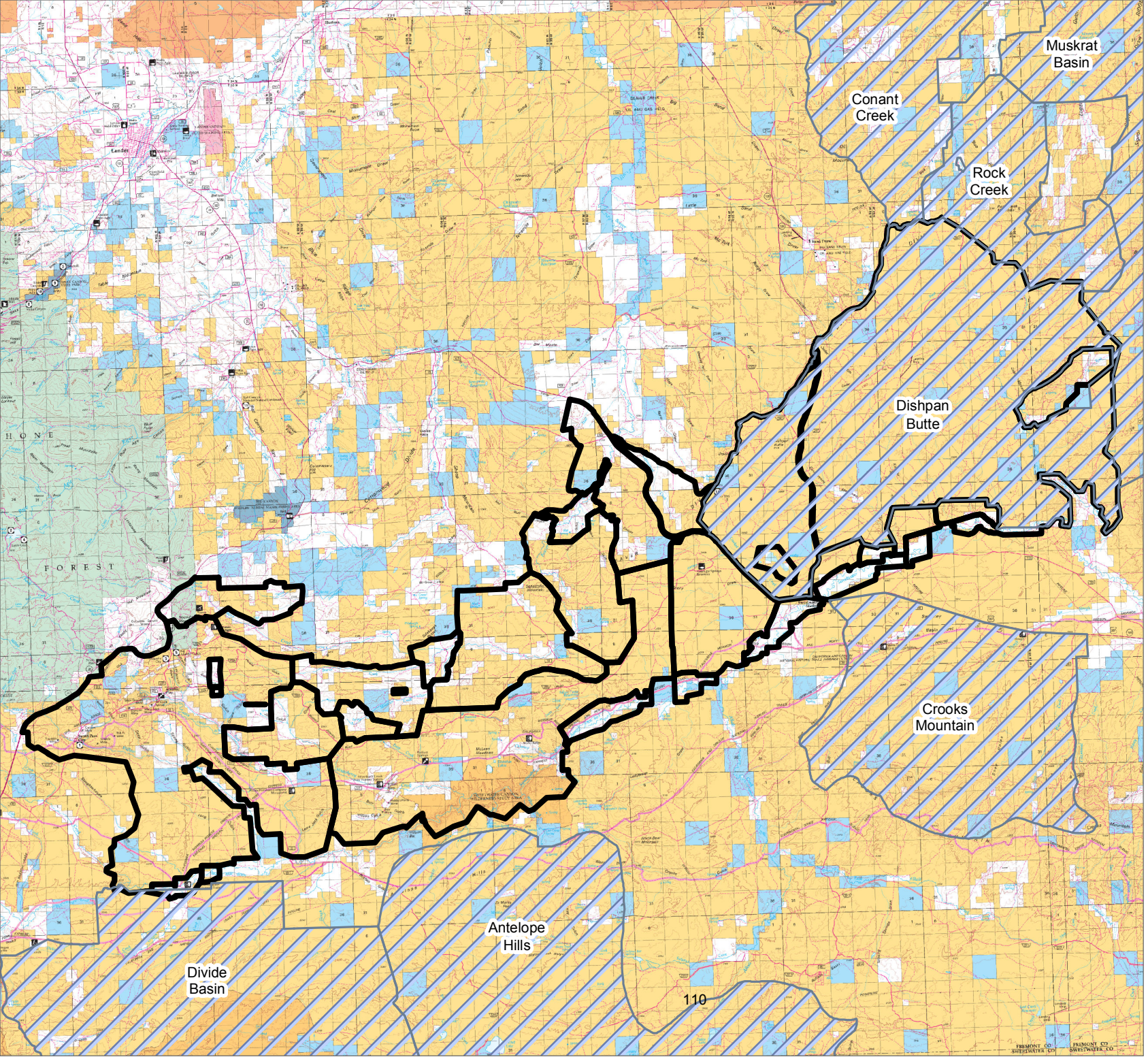
0 4

Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Wild horses

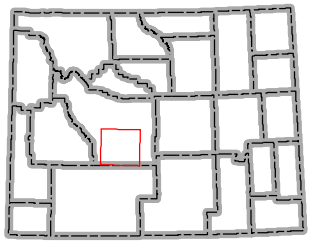
Allotment Boundary

Wild horse HMA

N

0 4

Miles



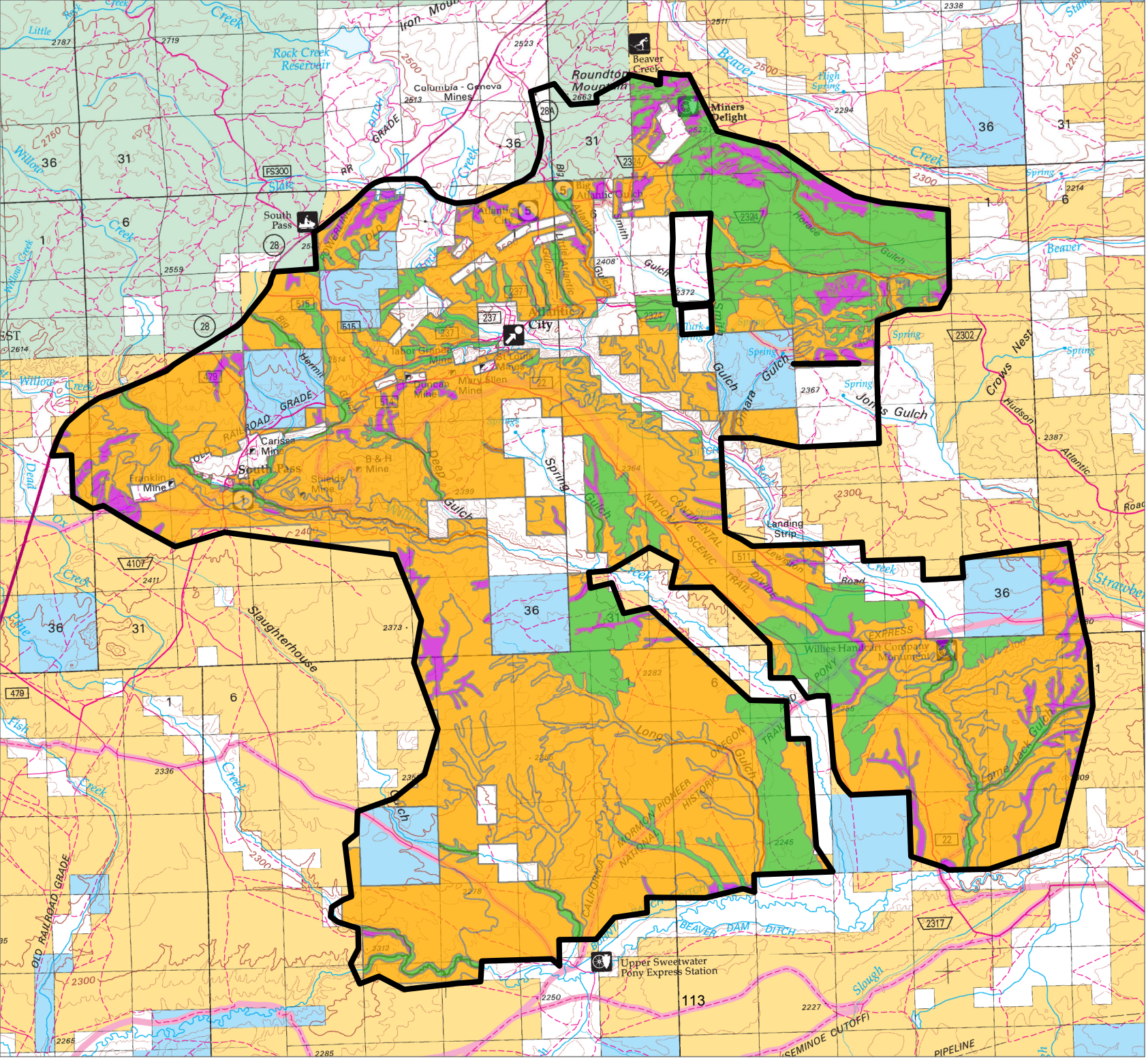
Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Appendix 4:

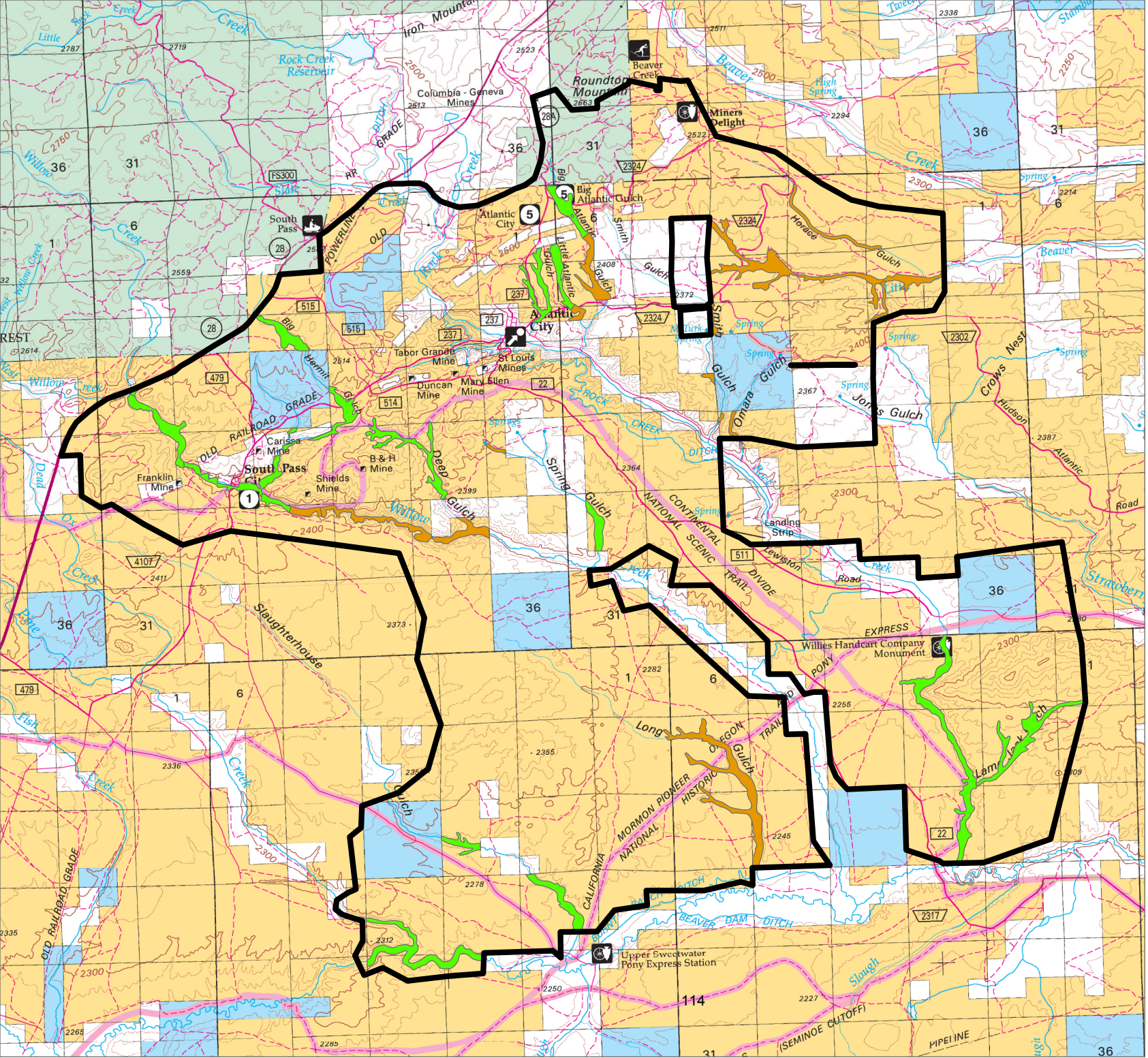
Allotment Summary Tables and Maps

Allotment: Atlantic City Common			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	7,777	27,976	2,628
Standard 2: Riparian	1,136	740	-
Standard 3: Upland	3,399	34,983	-
Standard 4: Wildlife	1,136	37,246	-
Standard 5: Water Quality	38,382	-	-
Standard 6: Air Quality	38,382	-	-


Upper Sweetwater Standards & Guidelines
Atlantic City Common Soils
Allotment Boundary
Met 7777 Acres
Not Met 27976 Acres
Unknown 2628 Acres
N
0
1.3
Miles
Date: 4/27/2015
No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.
Atlantic City
South Pass
Beaver Creek
Roundtop Mountain
Miners Delight
Rock Creek Reservoir
Columbia - Geneva Mines
Upper Sweetwater Pony Express Station
Willies Handcart Company Monument
Landing Strip
Slaughterhouse
Jones Gulch
Spring Gulch
Deep Gulch
Beaver Creek
Willow Creek
Dead Ox Creek
Fish Creek
Strawberry
Crows Nest
Hudson
Atlantic
Horace Gulch
Smith Gulch
Big Atlantic Gulch
Little Atlantic Gulch
Omara Gulch
Lewiston Gulch
Long Gulch
Lone Jack Gulch
Slough
Franklin Mine
Carissa Mine
Shields Mine
B & H Mine
Duncan Mine
Mary Ellen Mine
St Louis Mines
Labor Grande Mine
Iron Mountain
Big Hermit Gulch
Little Willow Creek
Rock Creek
High Spring
Spring
Road
OLD RAILROAD GRADE
CONTINENTAL SCENIC TRAIL
PONY EXPRESS
OREGON TRAIL
CALIFORNIA
MORMON PIONEER NATIONAL HISTORIC
BEAVER DAM DITCH
SEMINOE CUTOFF
PIPELINE
FS300
479
515
514
237
2324
2372
2408
2302
2367
2317
4107
22
28
28A
113
36
31
1
6

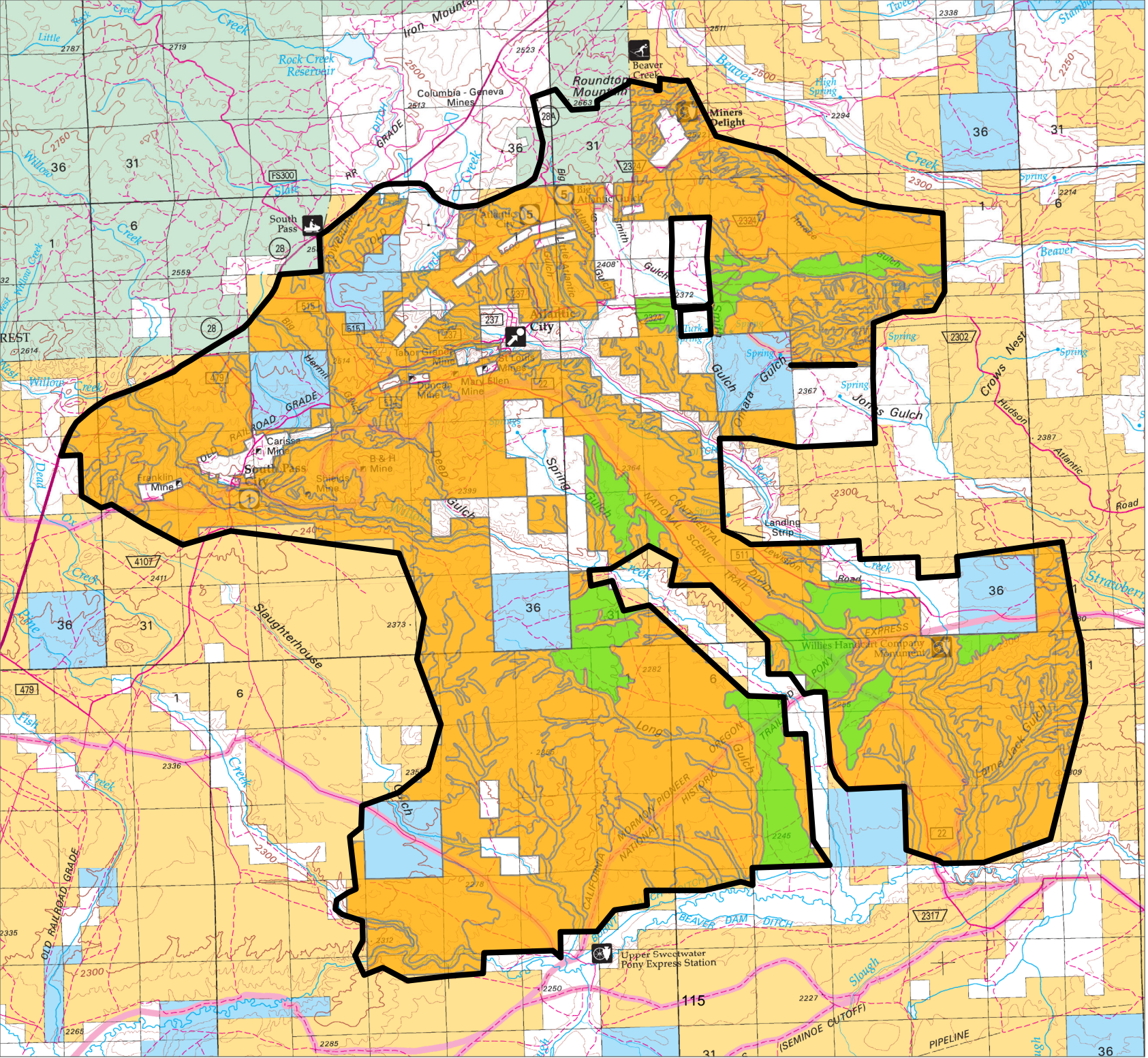
Upper Sweetwater Standards & Guidelines

Atlantic City Common Riparian



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Atlantic City Common Upland

Allotment Boundary

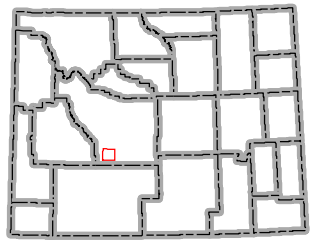
Met 3399 Acres

Not Met 34983 Acres

N

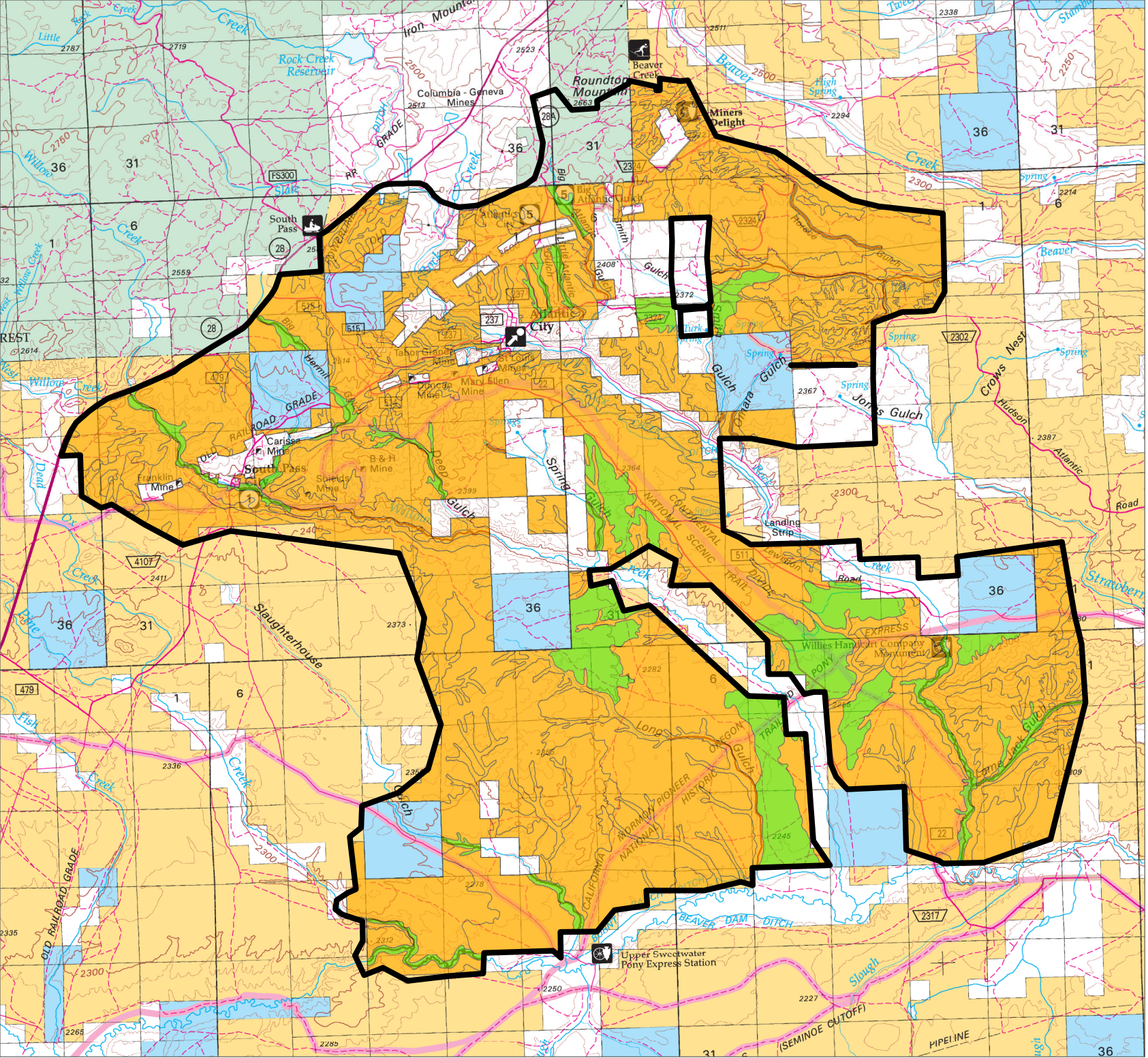
0 1.3

Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Atlantic City Common Wildlife

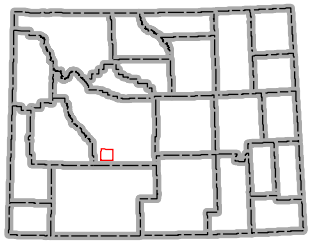
Allotment Boundary

Met 4535 Acres

Not Met 33847 Acres

N

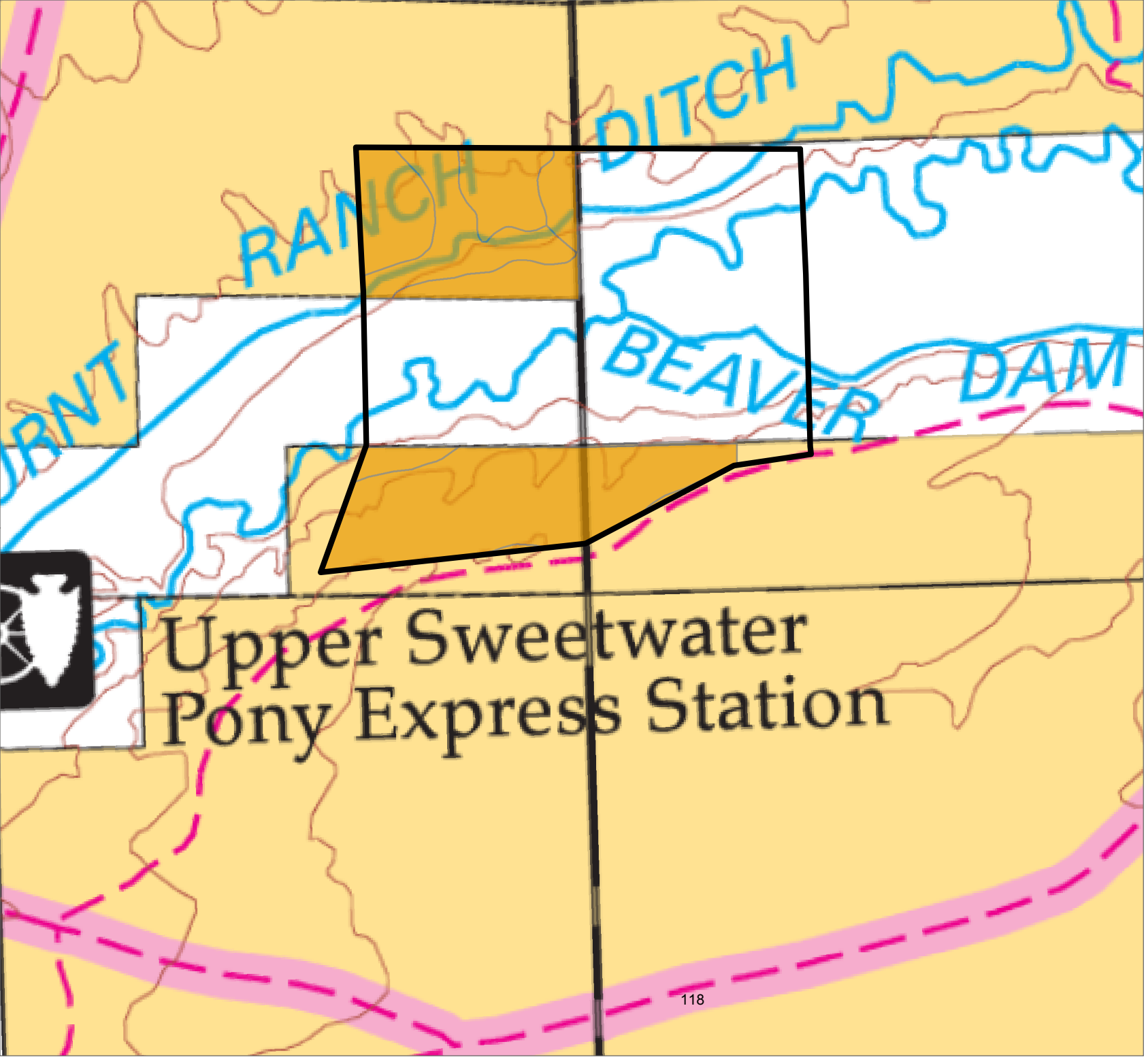
0 1.3
Miles



Date: 11/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Atlantic City - Lower Fenced			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	-	125	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	-	125	-
Standard 4: Wildlife	-	125	-
Standard 5: Water Quality	125	-	-
Standard 6: Air Quality	125	-	-



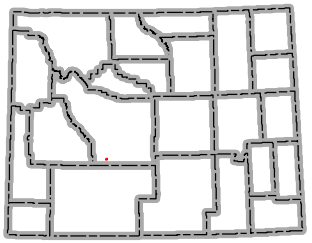
Upper Sweetwater Standards & Guidelines

Atlantic City Lower Fenced Soils

Allotment Boundary
Met 0 Acres
Not Met 125 Acres

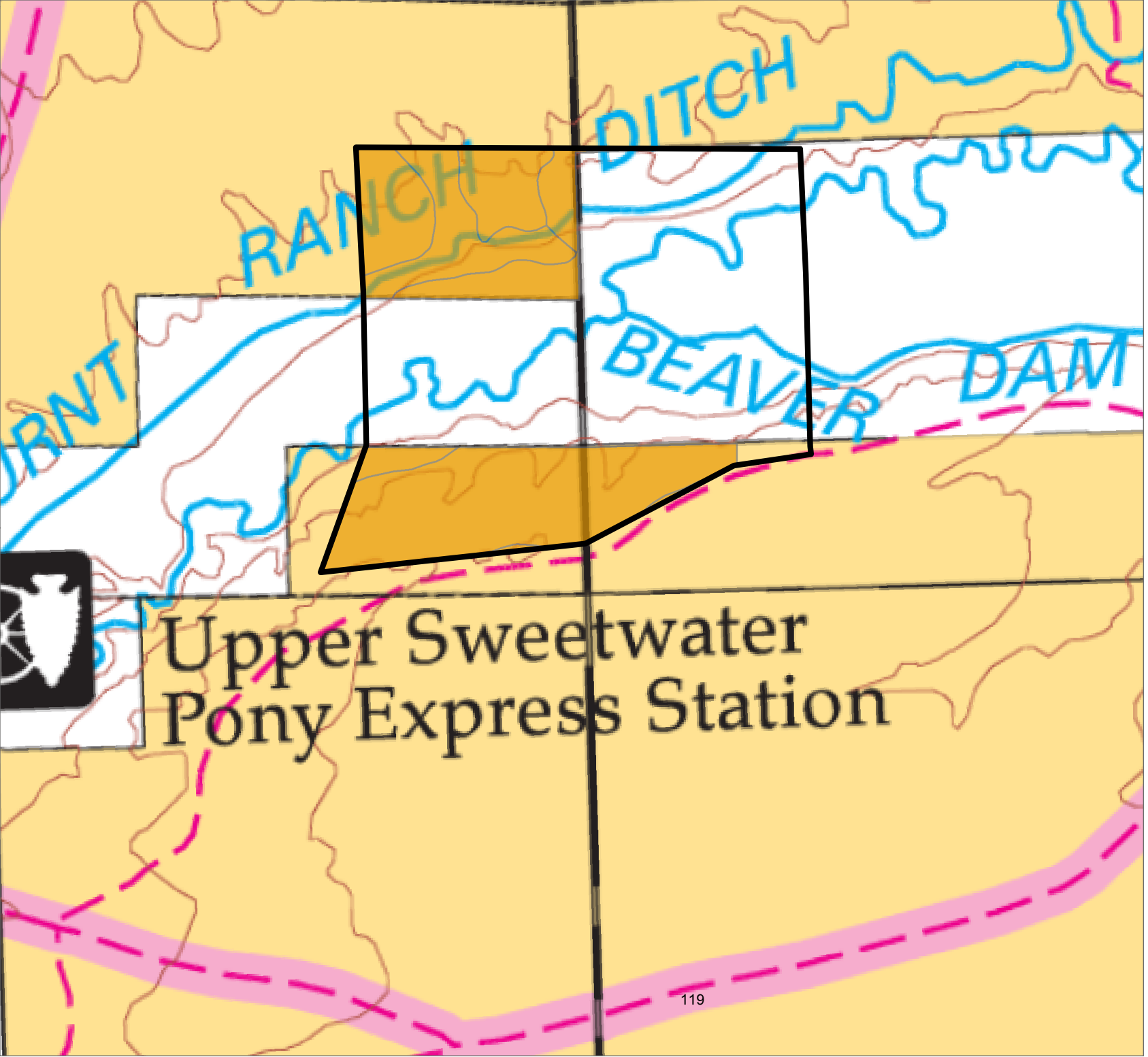
N

0 0.17
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



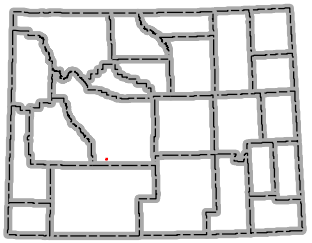
Upper Sweetwater Standards & Guidelines

Atlantic City Lower Fenced Upland

Allotment Boundary
Met 0 Acres
Not Met 125 Acres

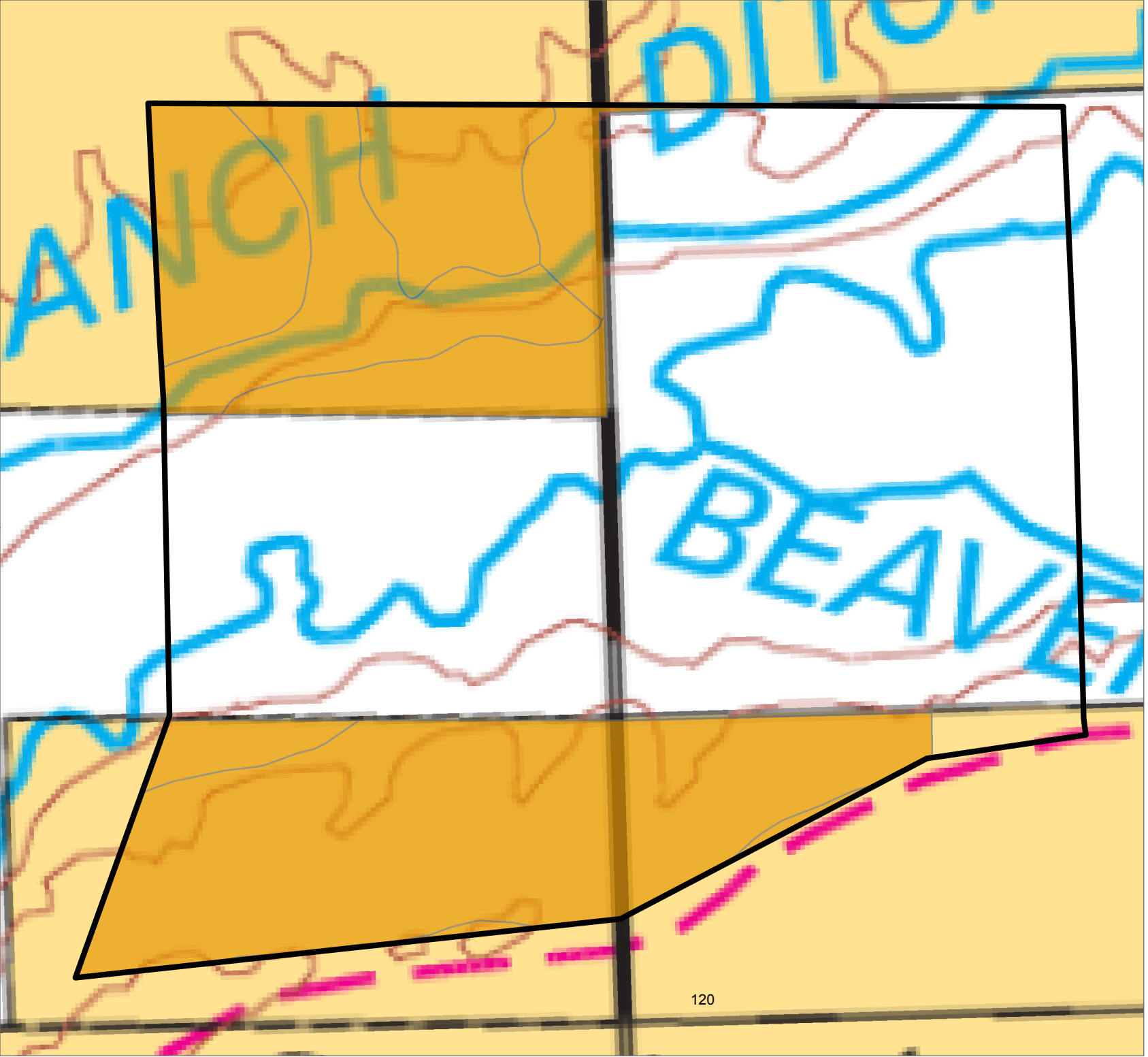
N

0 0.17
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



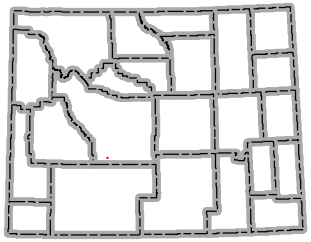
Upper Sweetwater Standards & Guidelines

Atlantic City Lower Fenced Wildlife

Allotment Boundary
Met 0 Acres
Not Met 125 Acres
Unknown 0 Acres

N

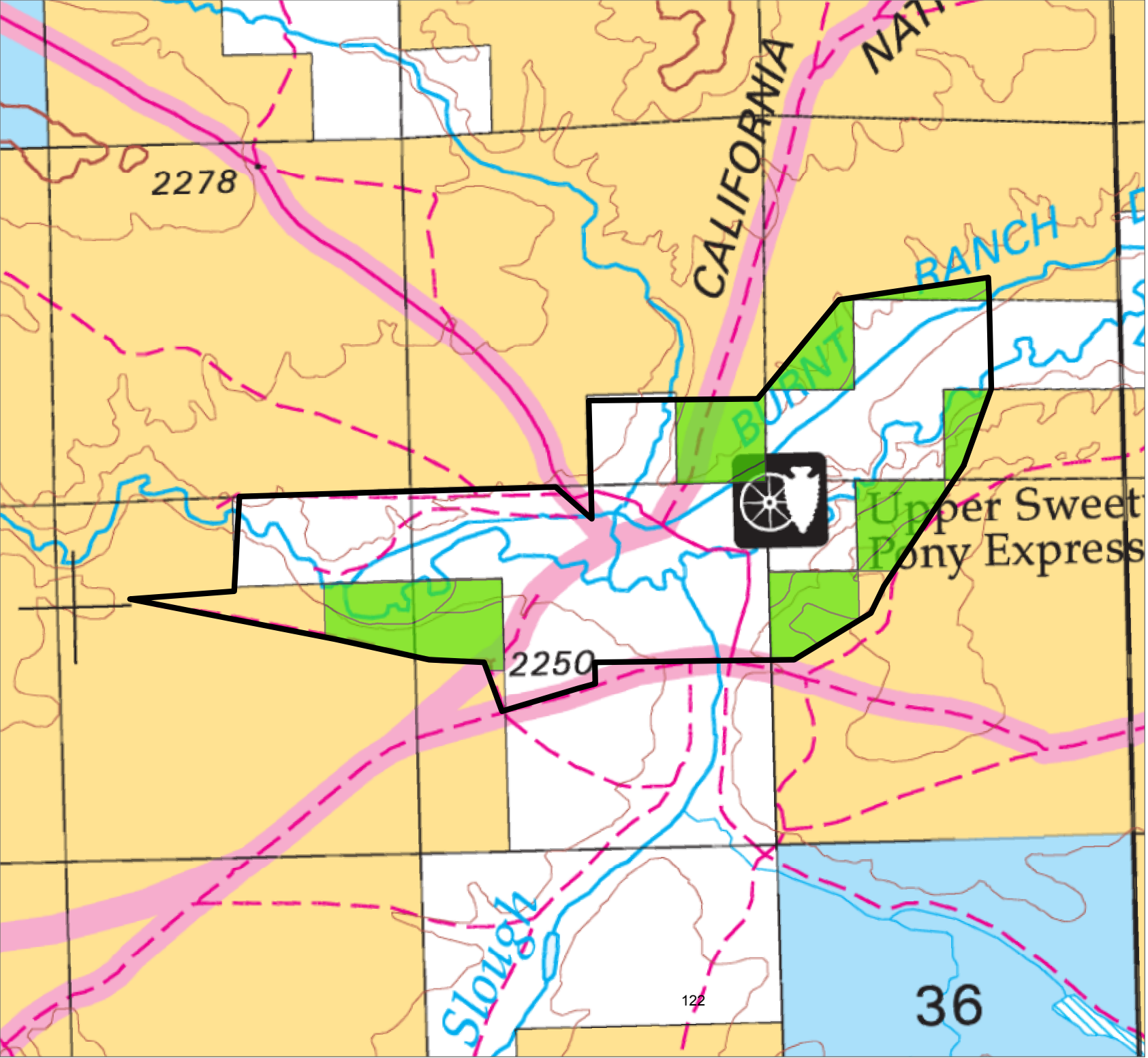
0 0.08
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Atlantic City - Upper Fenced			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	214	-	-
Standard 2: Riparian	35	-	-
Standard 3: Upland	-	214	-
Standard 4: Wildlife	35	179	-
Standard 5: Water Quality	214	-	-
Standard 6: Air Quality	214	-	-



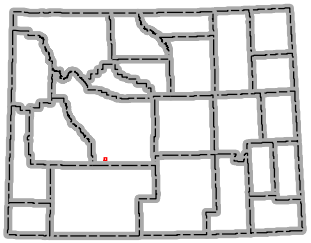
Upper Sweetwater Standards & Guidelines

Atlantic City Upper Fenced Soils

Allotment Boundary
Met 214 Acres
Not Met 0 Acres

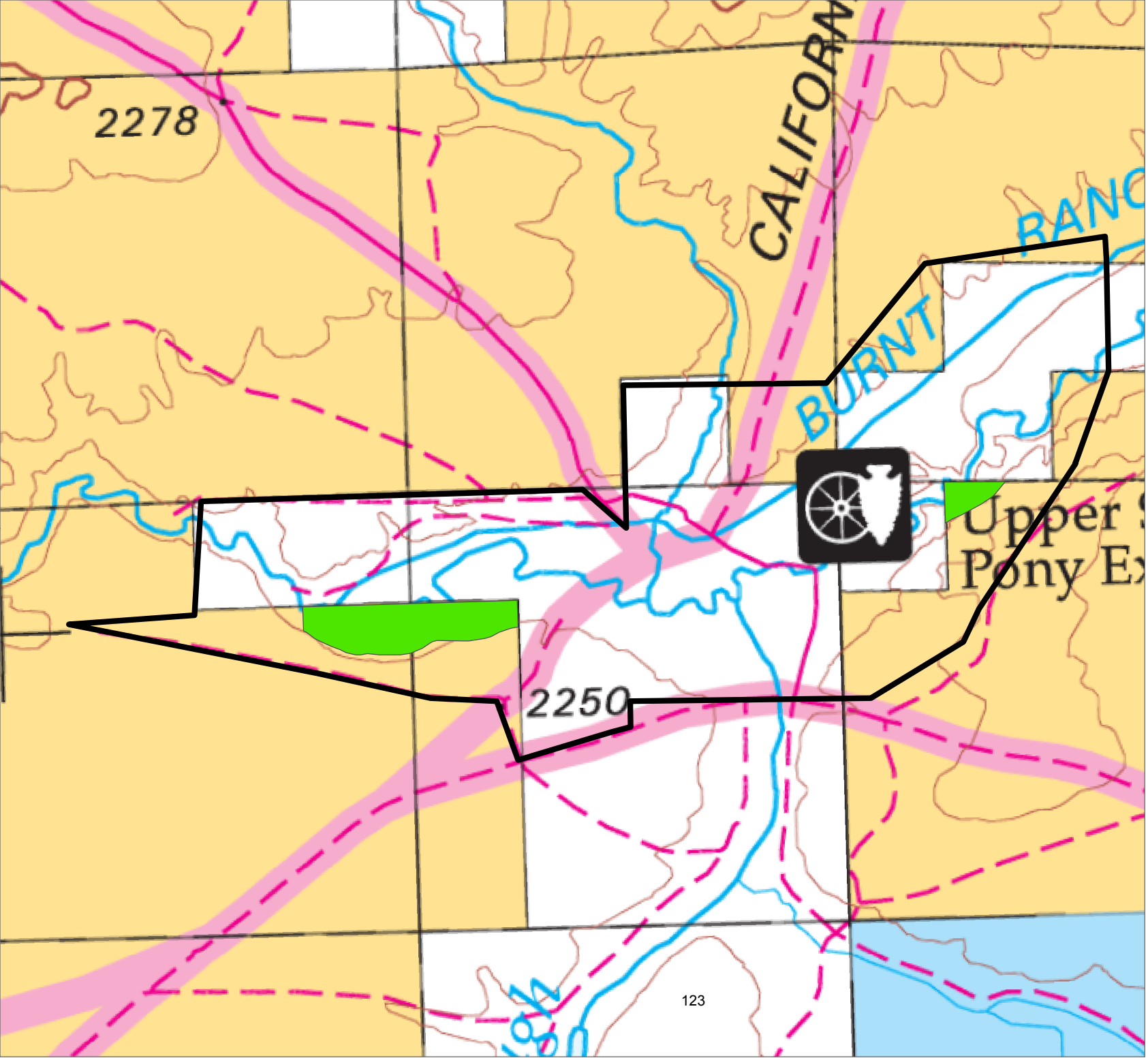
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



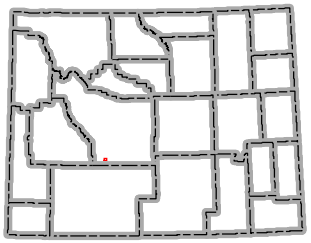
Upper Sweetwater Standards & Guidelines

Atlantic City Upper Fenced Riparian

Allotment Boundary
Met 35 Acres
Not Met 0 Acres

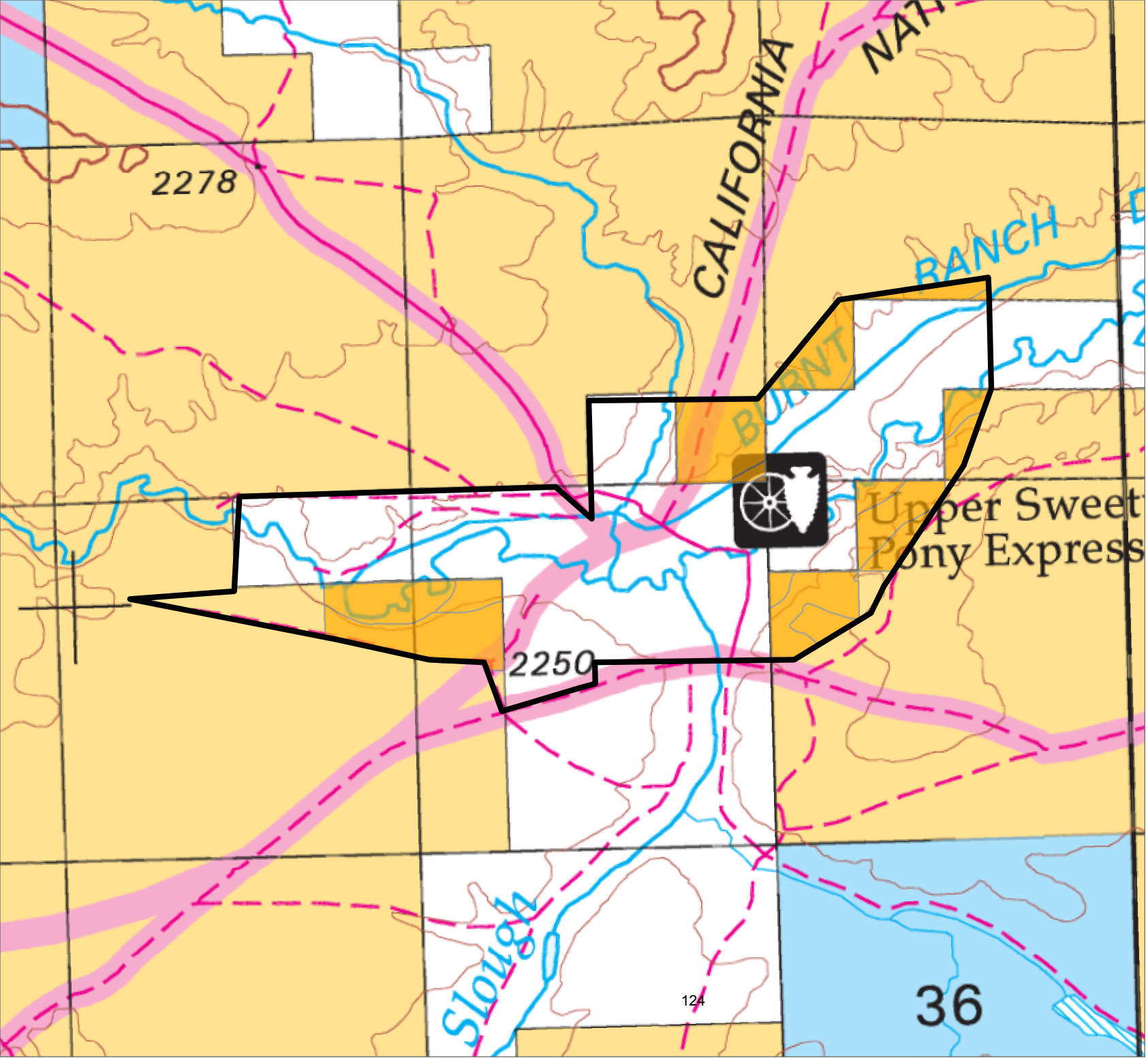
N

0 0.2
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



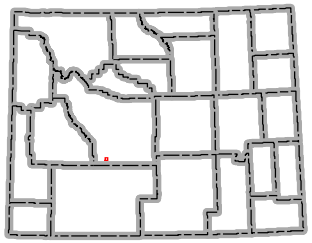
Upper Sweetwater Standards & Guidelines

Atlantic City Upper Fenced Uplands

Allotment Boundary
Met 0 Acres
Not Met 214 Acres

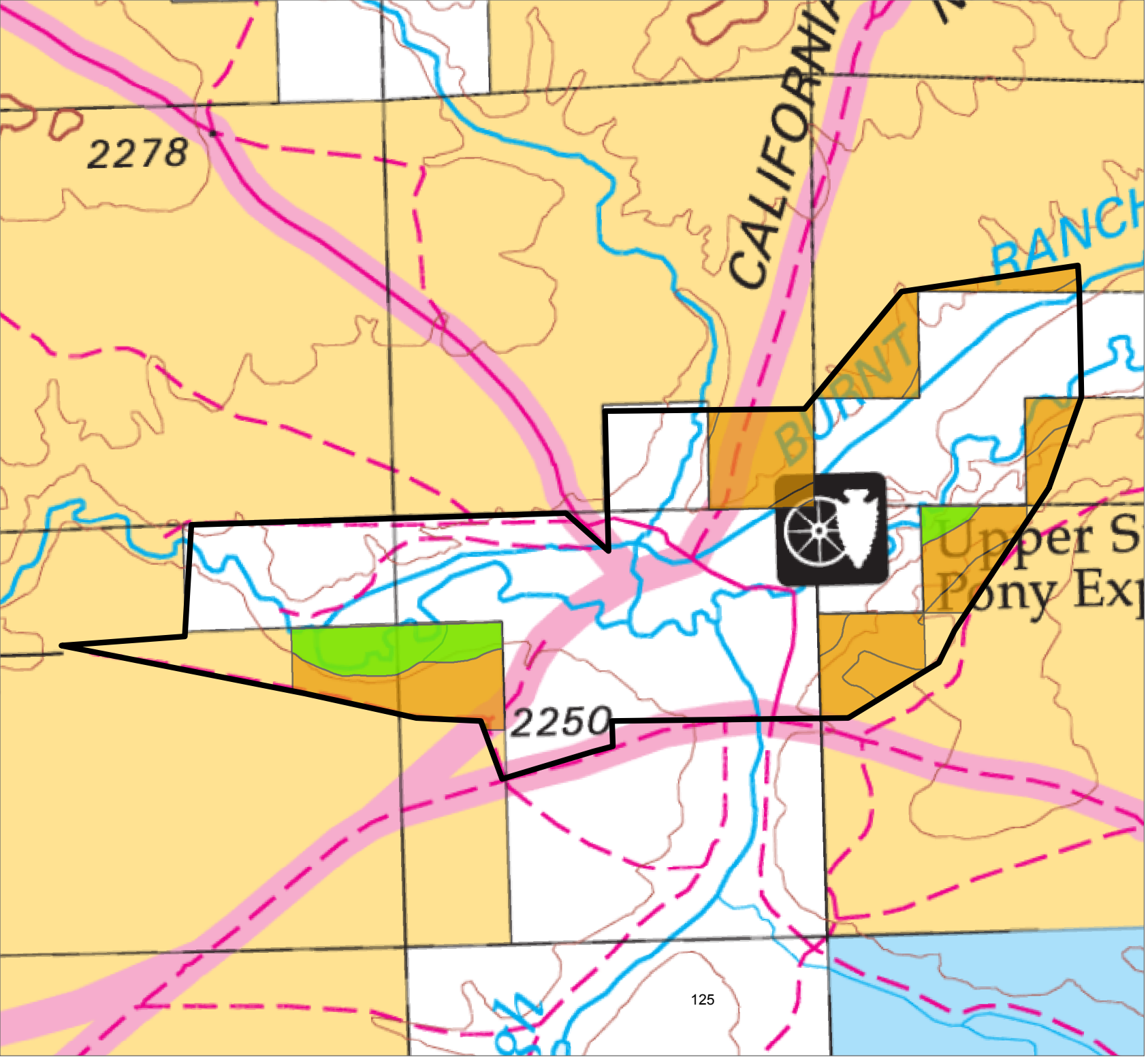
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



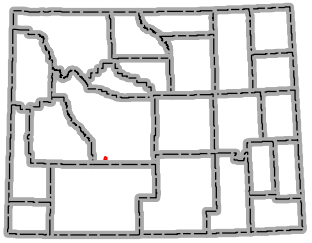
Upper Sweetwater Standards & Guidelines

Atlantic City Upper Fenced Wildlife

- Allotment Boundary
- Met 35 Acres
- Not Met 179 Acres
- Unknown 0 Acres

N

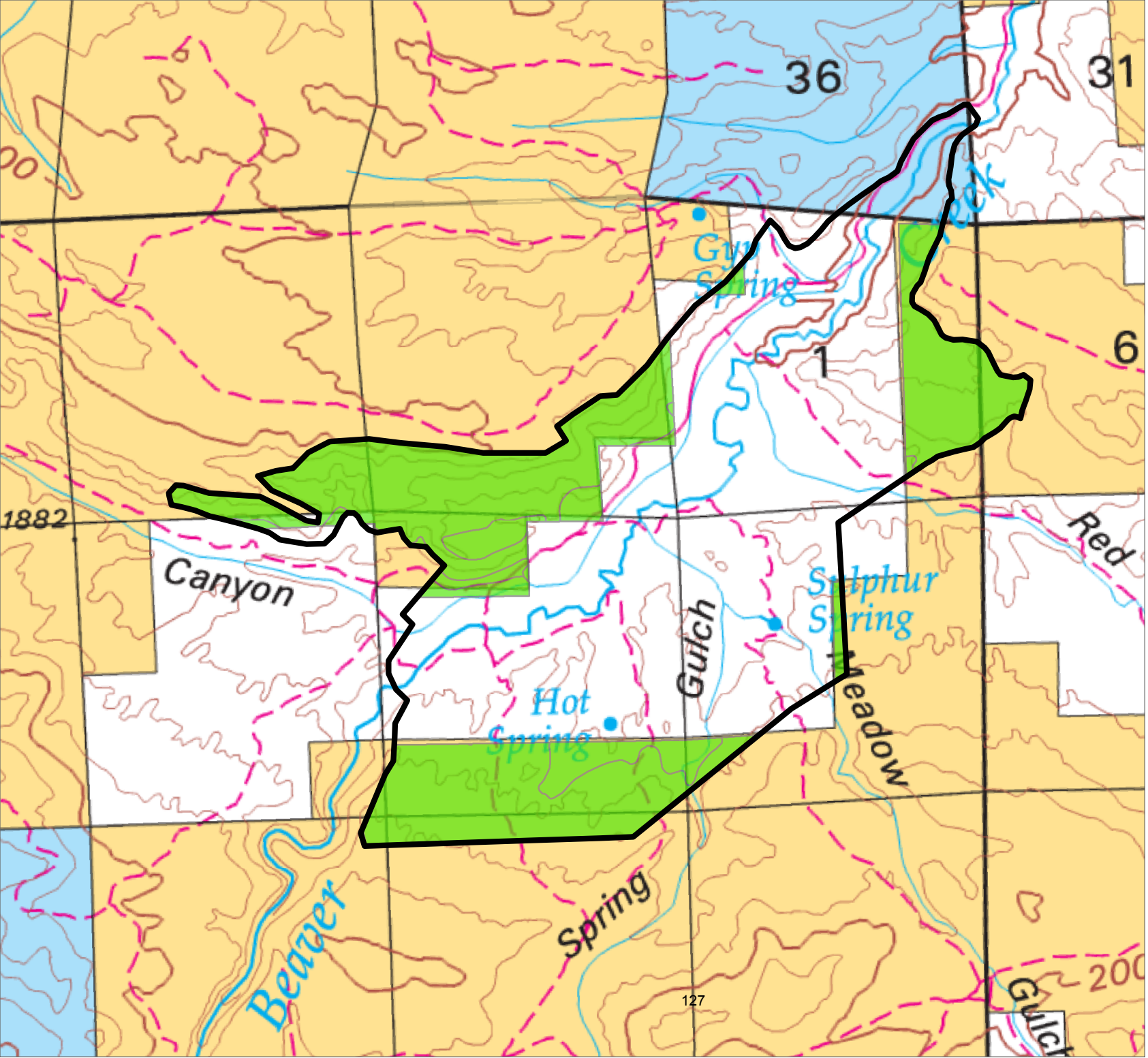
0 0.2
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Auer Ranch			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	648	-	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	-	648	-
Standard 4: Wildlife	-	648	-
Standard 5: Water Quality	648	-	-
Standard 6: Air Quality	648	-	-



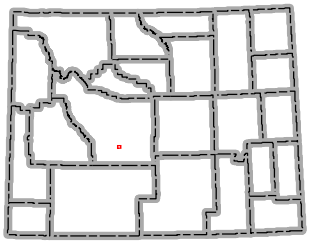
Upper Sweetwater Standards & Guidelines

Auer Ranch Soils

Allotment Boundary
Met 648 Acres
Not Met 0 Acres

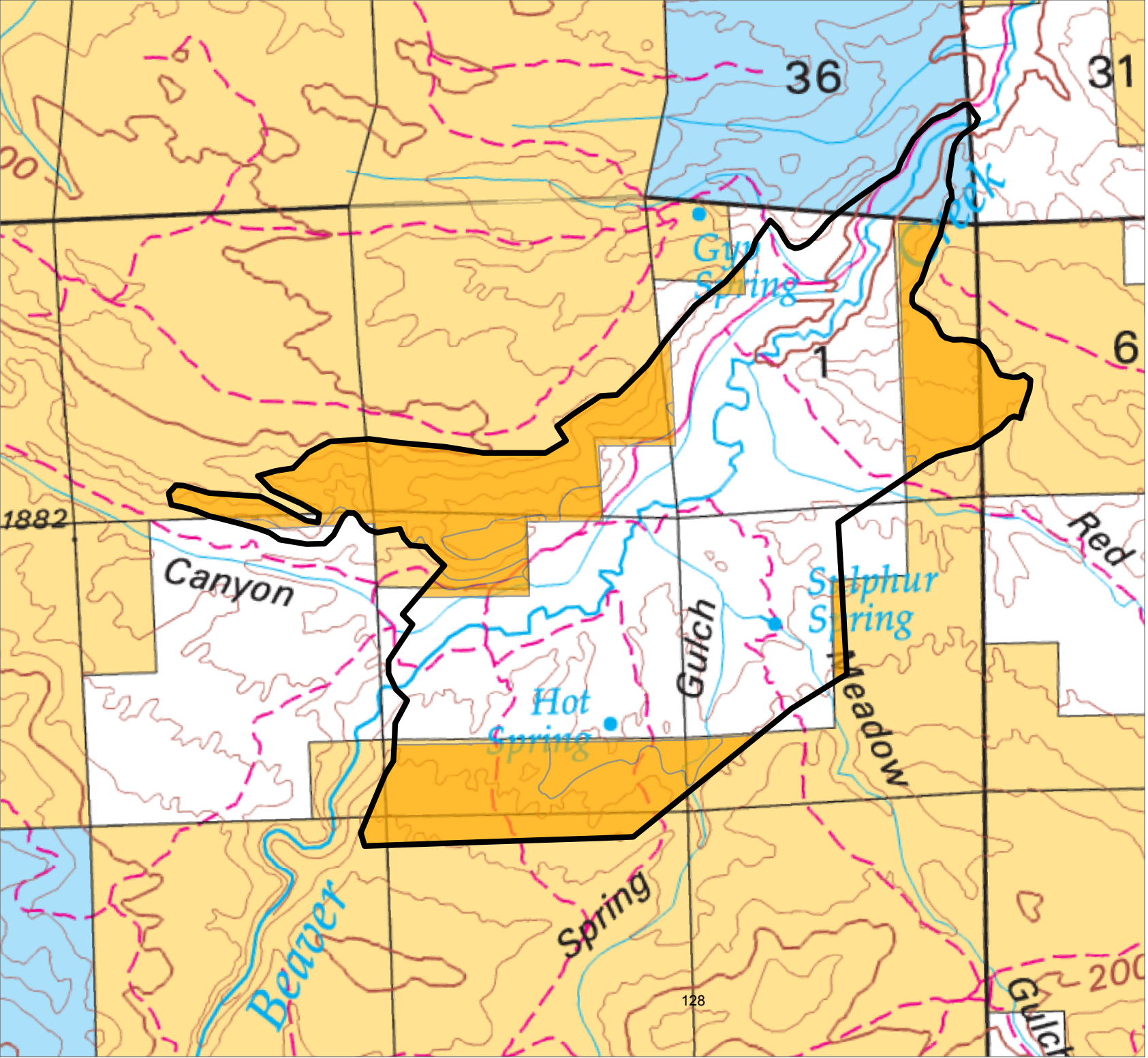
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



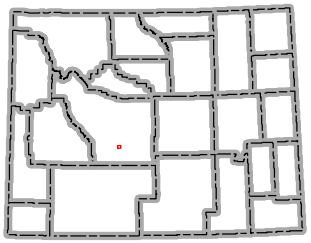
Upper Sweetwater Standards & Guidelines

Auer Ranch Upland

Allotment Boundary
Met 0 Acres
Not Met 648 Acres

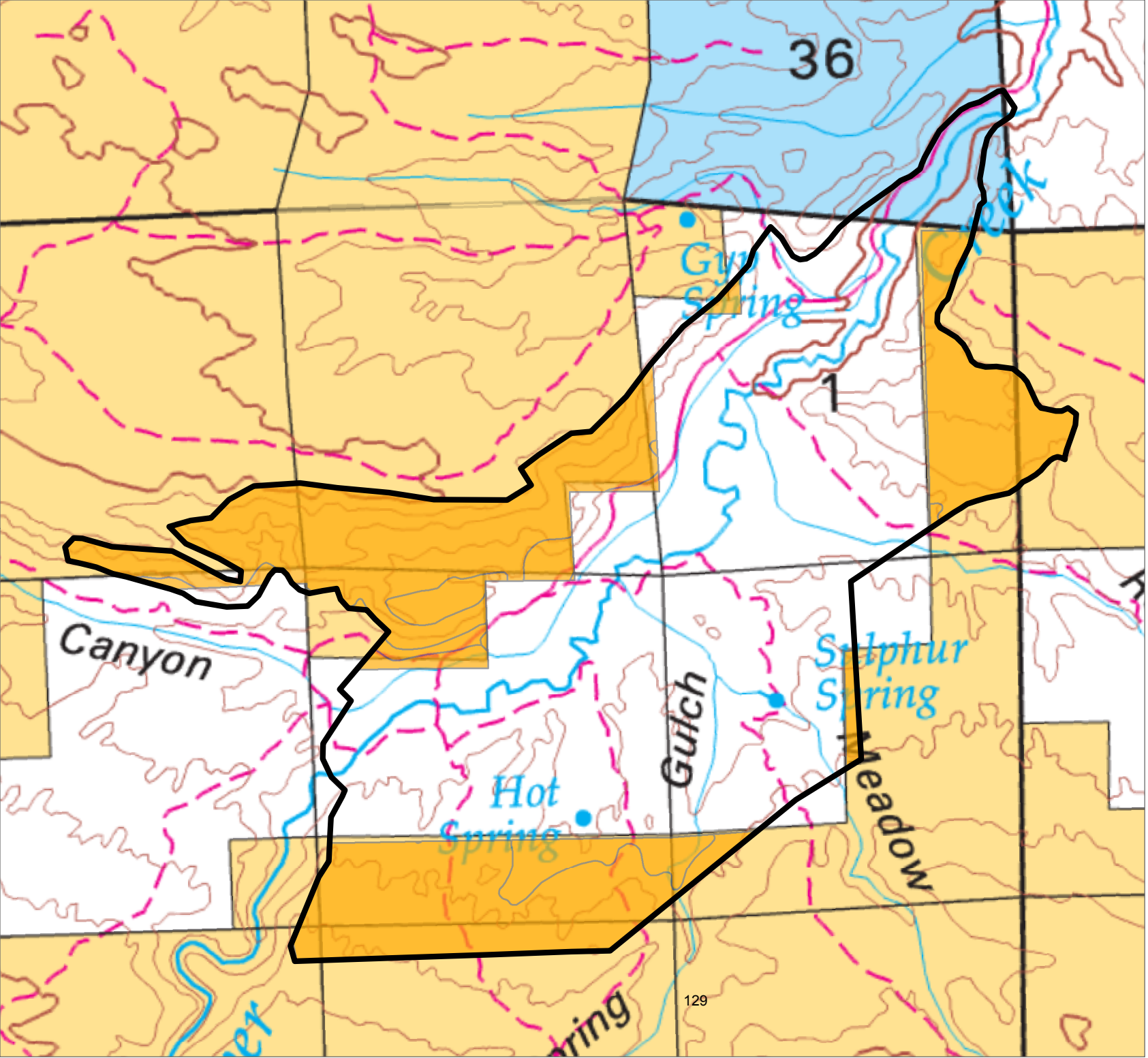
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



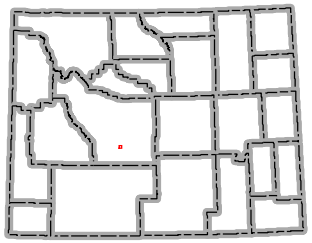
Upper Sweetwater Standards & Guidelines

Auer Ranch Wildlife

Allotment Boundary
Met 0 Acres
Not Met 648 Acres
Unknown 0 Acres

N

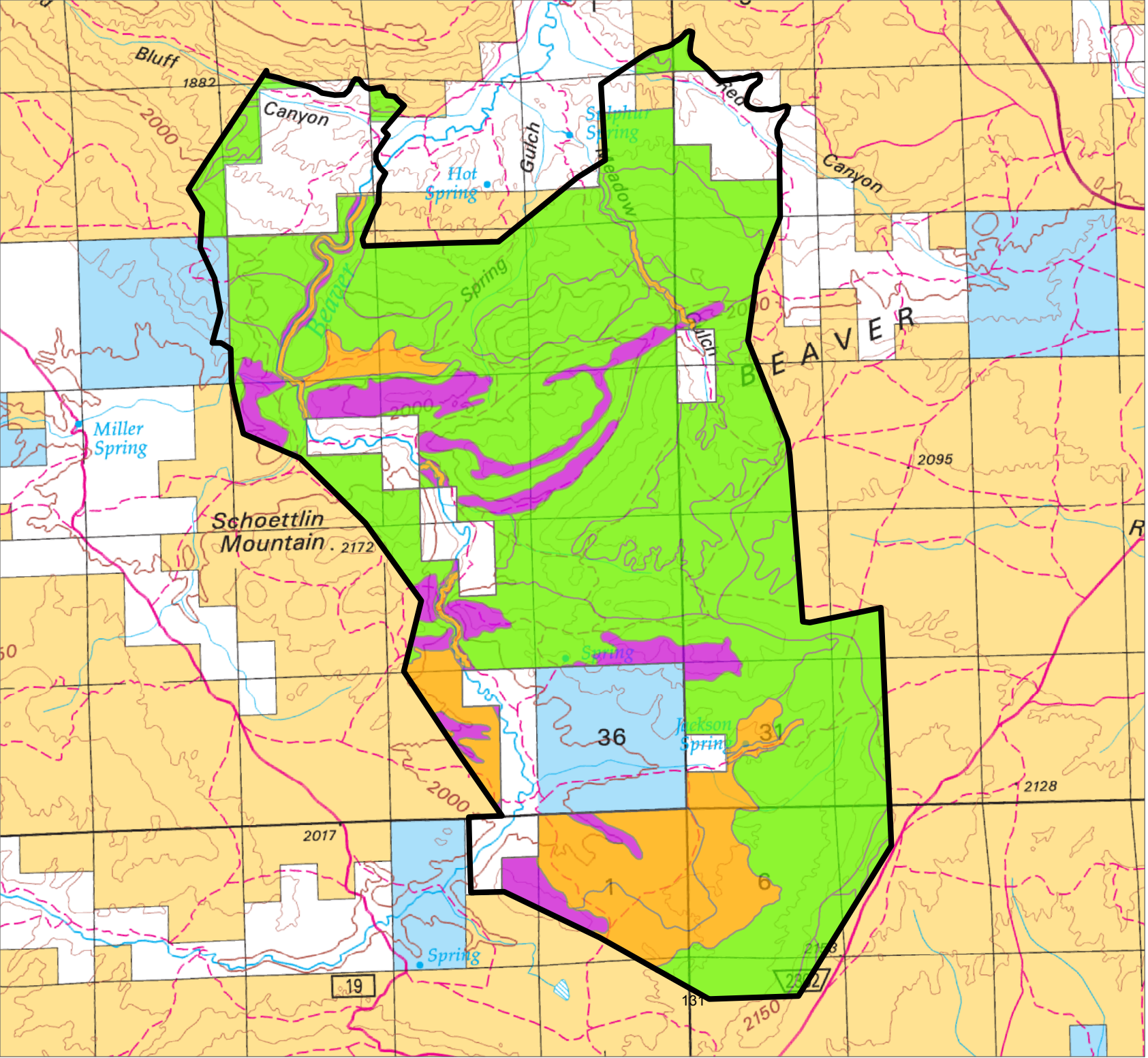
0 0.3
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Beaver AMP			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	6,885	1,238	835
Standard 2: Riparian	13	118	-
Standard 3: Upland	-	8,958	-
Standard 4: Wildlife	13	8,945	-
Standard 5: Water Quality	8,958	-	-
Standard 6: Air Quality	8,958	-	-



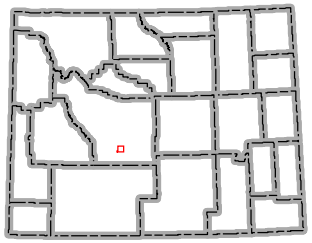
Upper Sweetwater Standards & Guidelines

Beaver AMP Soils

- Allotment Boundary
- Met 6885 Acres
- Not Met 1238 Acres
- Unknown 835 Acres

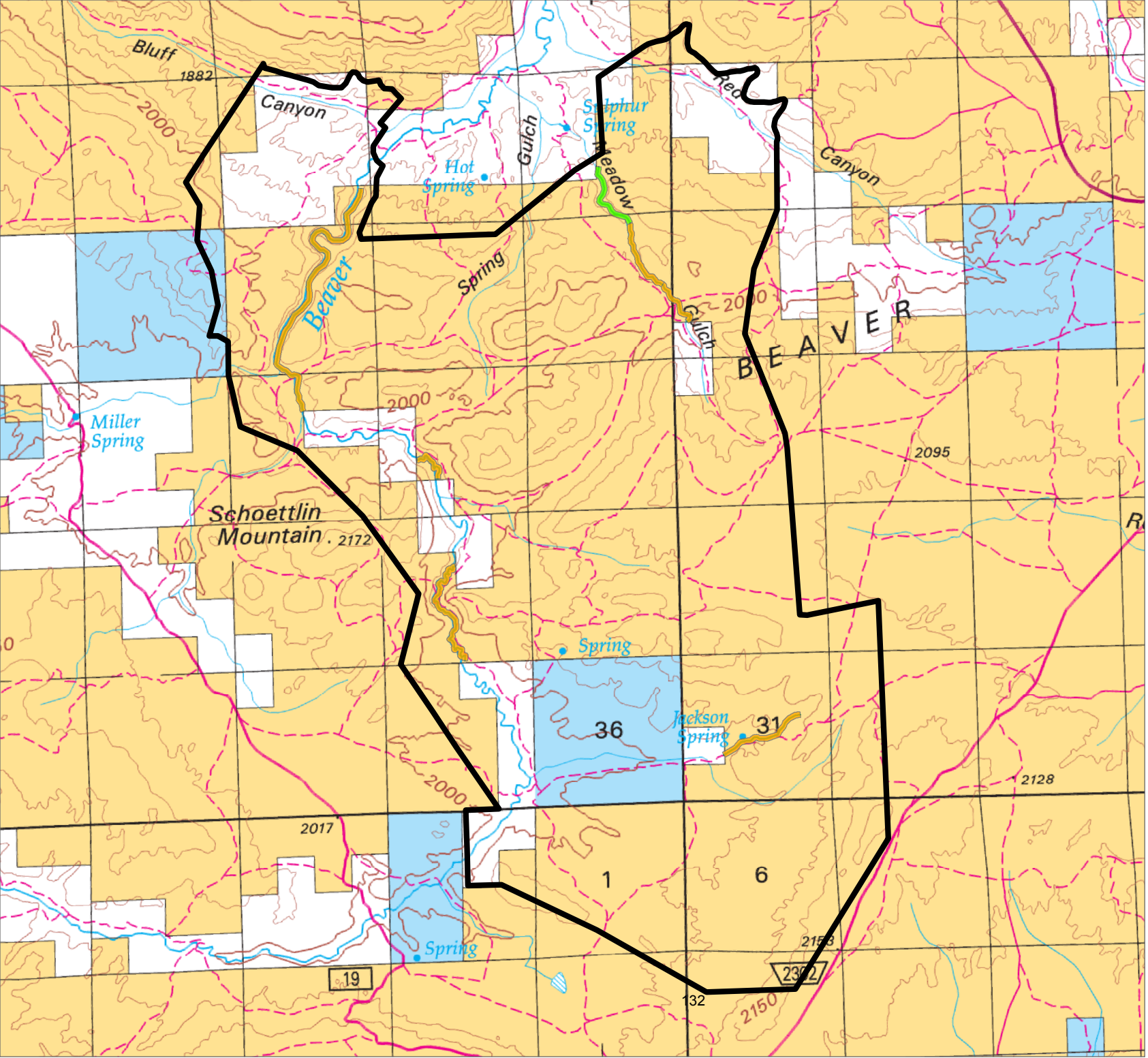
N

0 0.7
Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Beaver AMP Riparian

Allotment Boundary

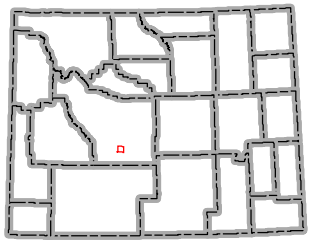
Met 13 Acres

Not Met 118 Acres

N

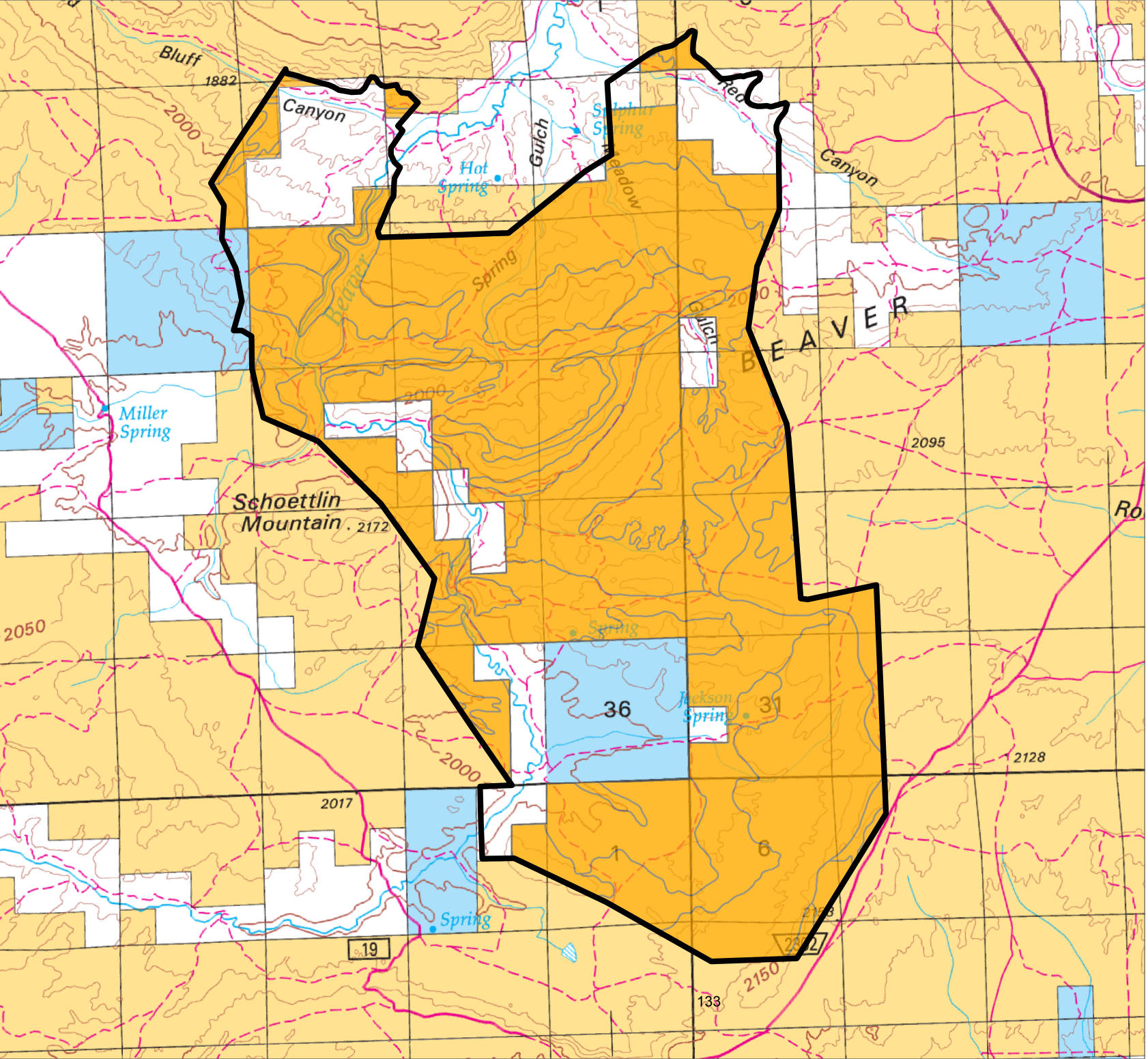
0 0.7

Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Beaver AMP Upland

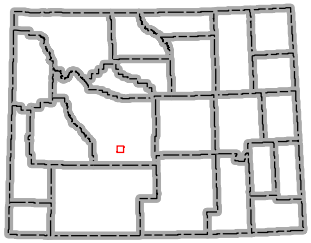
Allotment Boundary

Met 0 Acres

Not Met 8958 Acres

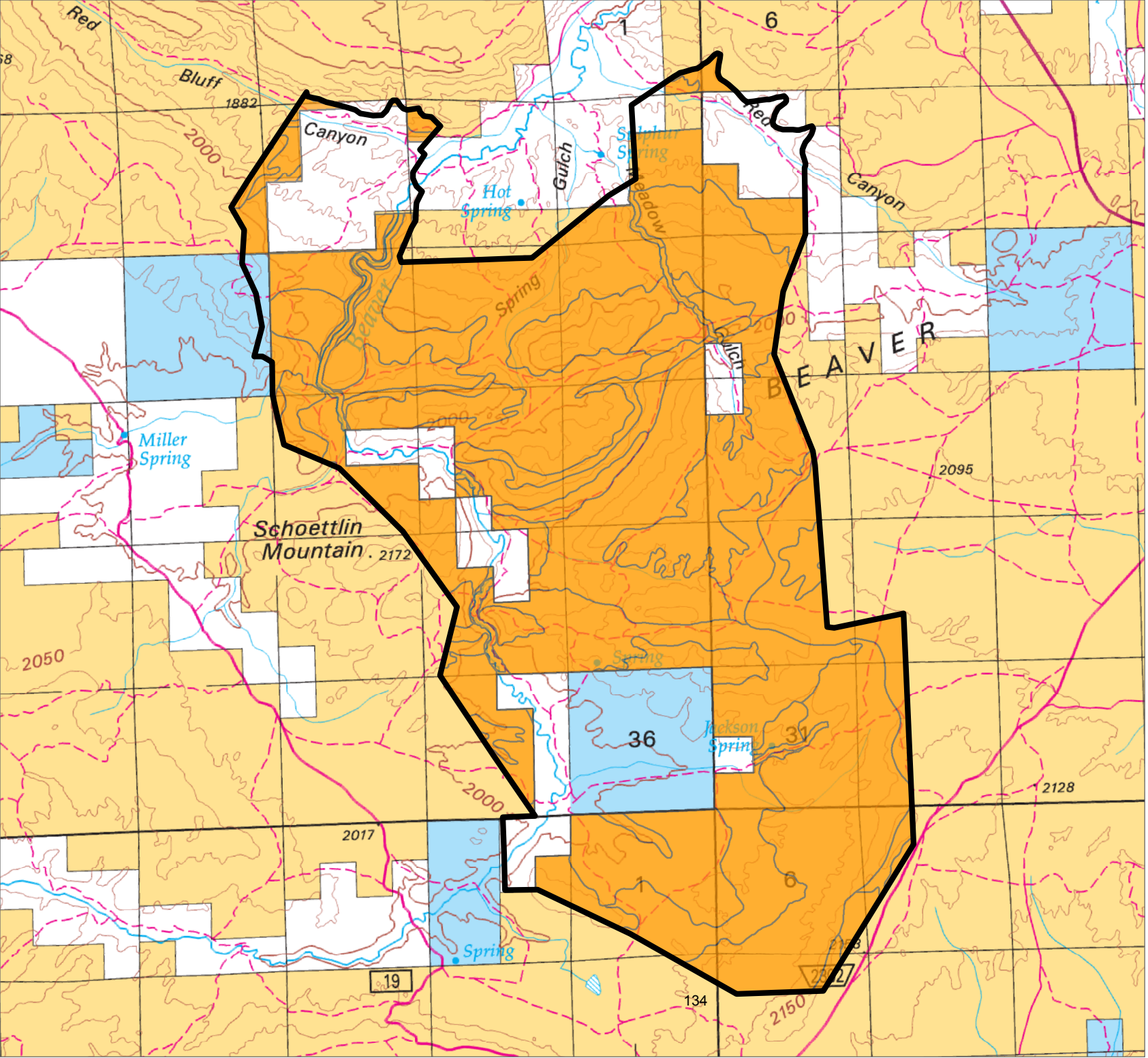
N

0 0.7 Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



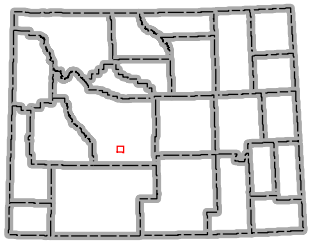
Upper Sweetwater Standards & Guidelines

Beaver AMP Wildlife

- Allotment Boundary
- Met 0 Acres
- Not Met 8958 Acres
- Unknown 0 Acres

N

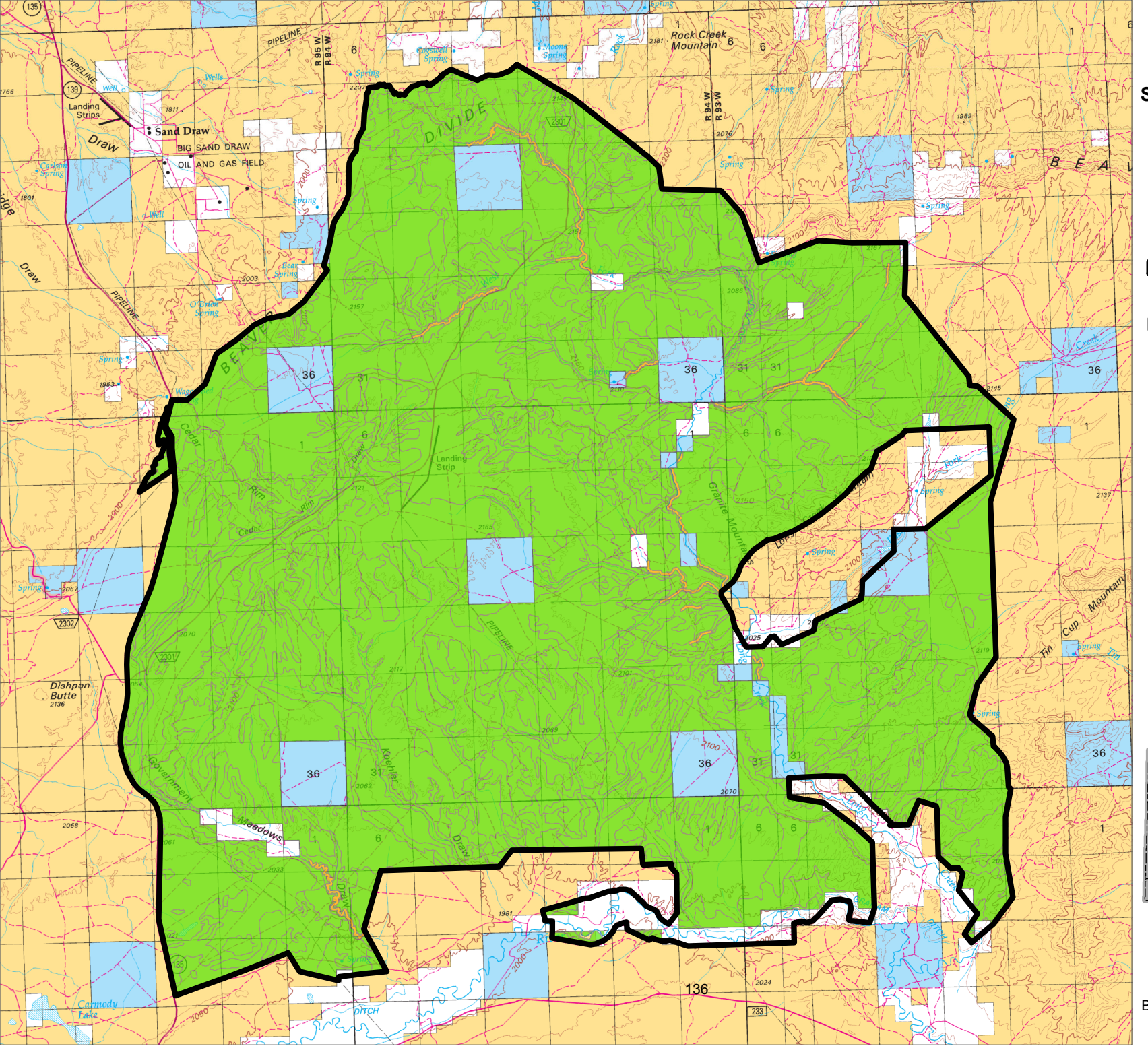
0 0.7
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Big Pasture			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	75,620	474	-
Standard 2: Riparian	113	551	-
Standard 3: Upland	60,364	15,726	-
Standard 4: Wildlife	59,700	16,390	-
Standard 5: Water Quality	76,094	-	-
Standard 6: Air Quality	76,094	-	-



Upper Sweetwater Standards & Guidelines

Big Pasture Soils

Allotment Boundary

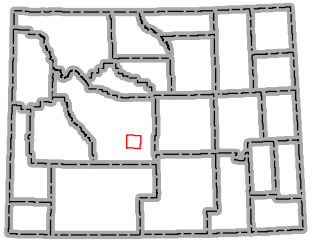
Met 75620 Acres

Not Met 474 Acres

N

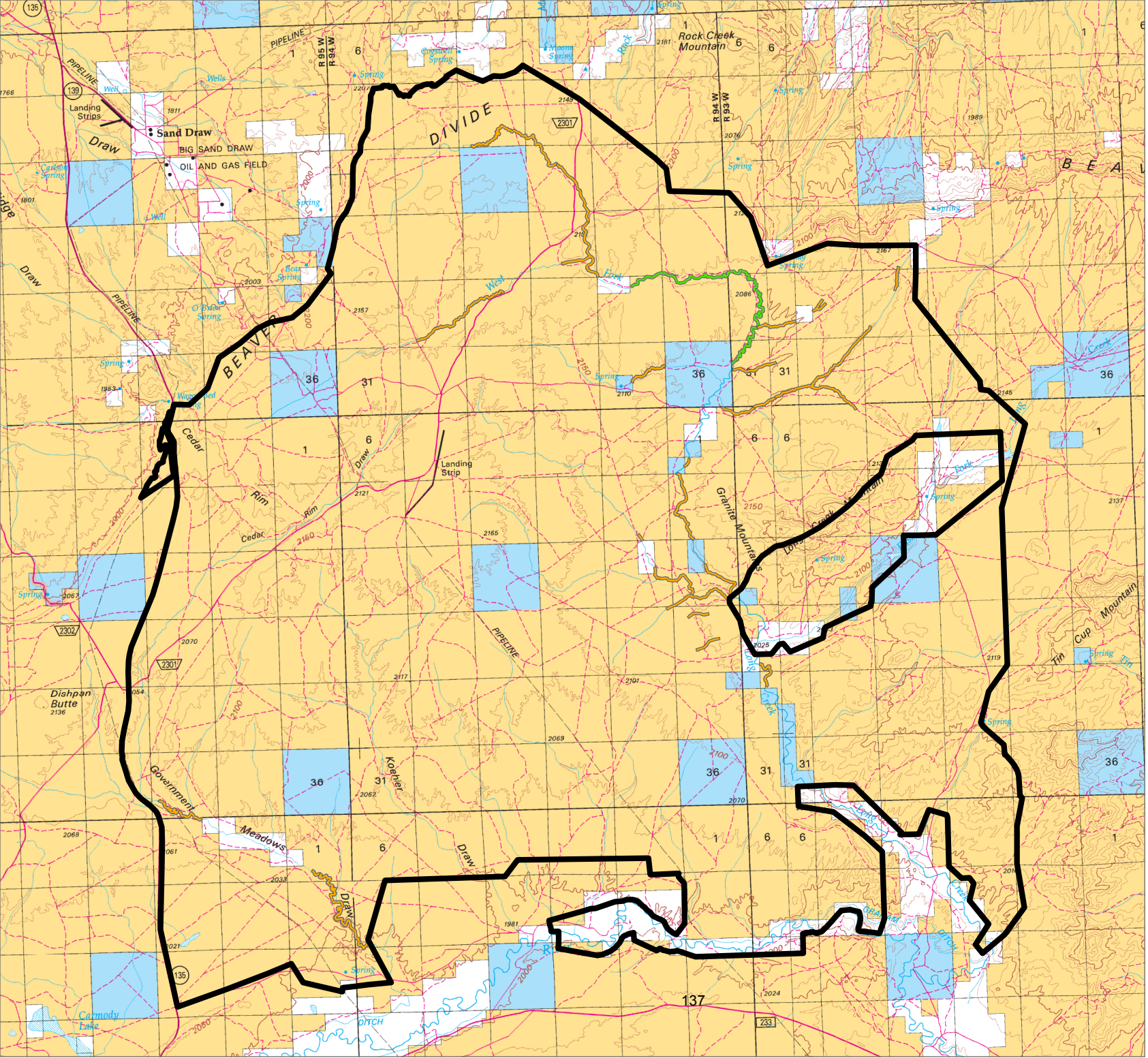
0 1.6

Miles



Date: 3/25/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Big Pasture Riparian

Allotment Boundary

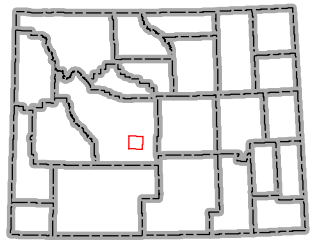
Met 113 Acres

Not Met 551 Acres

N

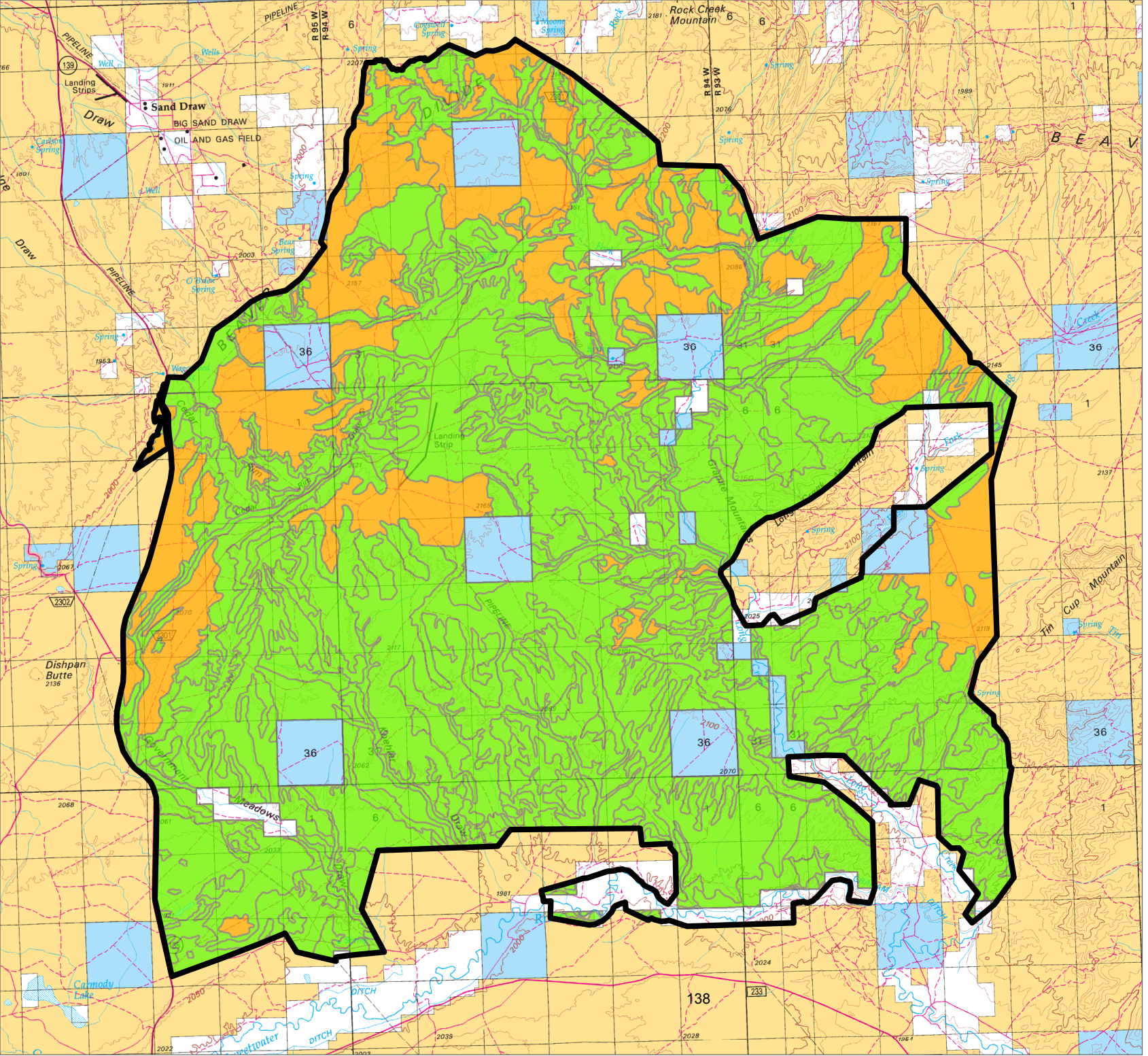
0 1.6

Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Big Pasture Upland

Allotment Boundary

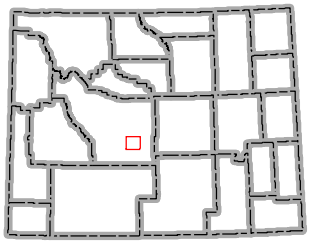
Met 60364 Acres

Not Met 15726 Acres

N

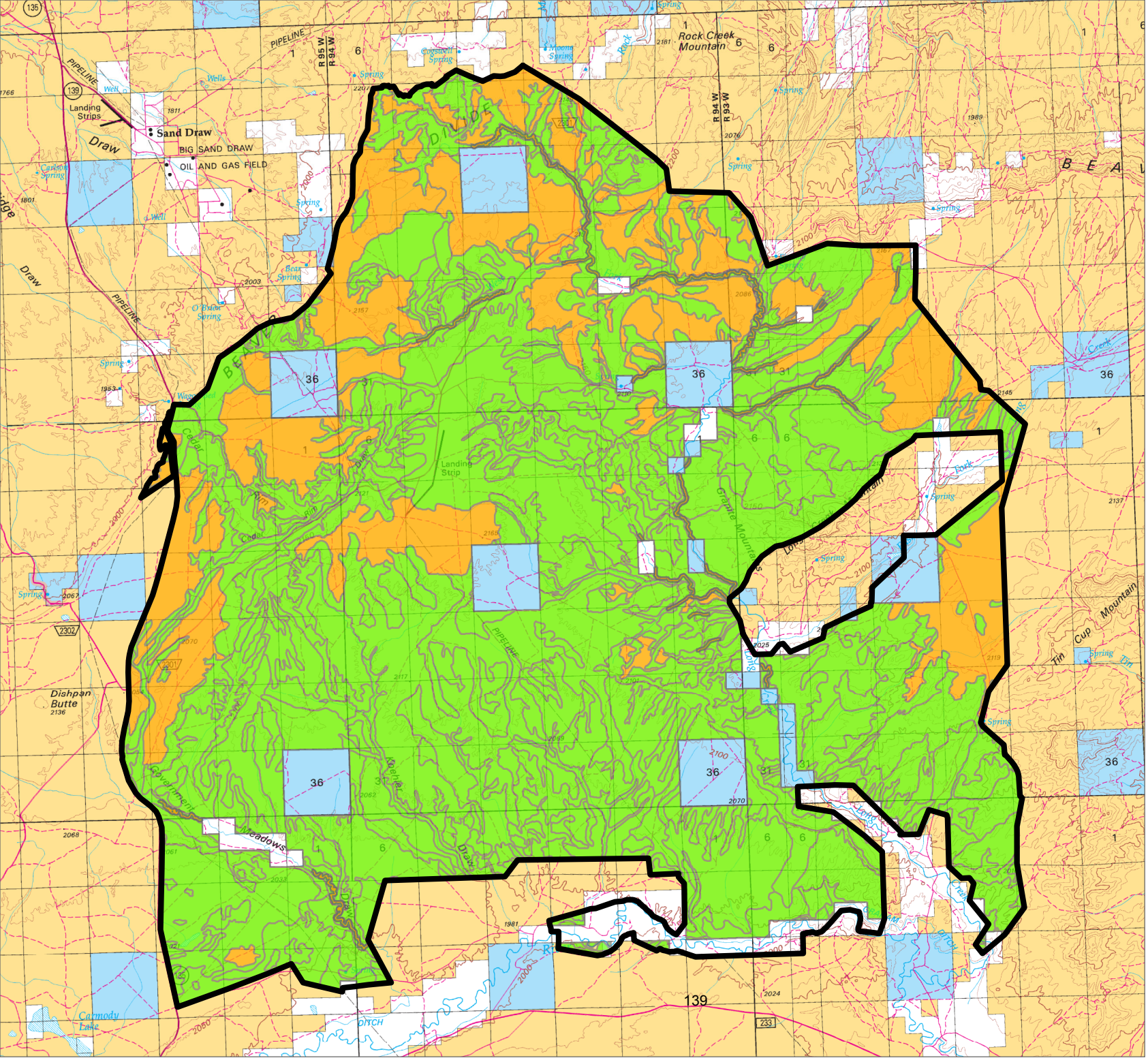
0 1.6

Miles



Date: 3/25/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



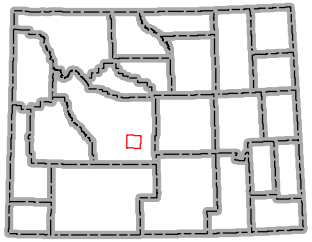
Upper Sweetwater Standards & Guidelines

Big Pasture Wildlife

- Allotment Boundary
- Met 59700 Acres
- Not Met 16390 Acres
- Unknown 0 Acres

N

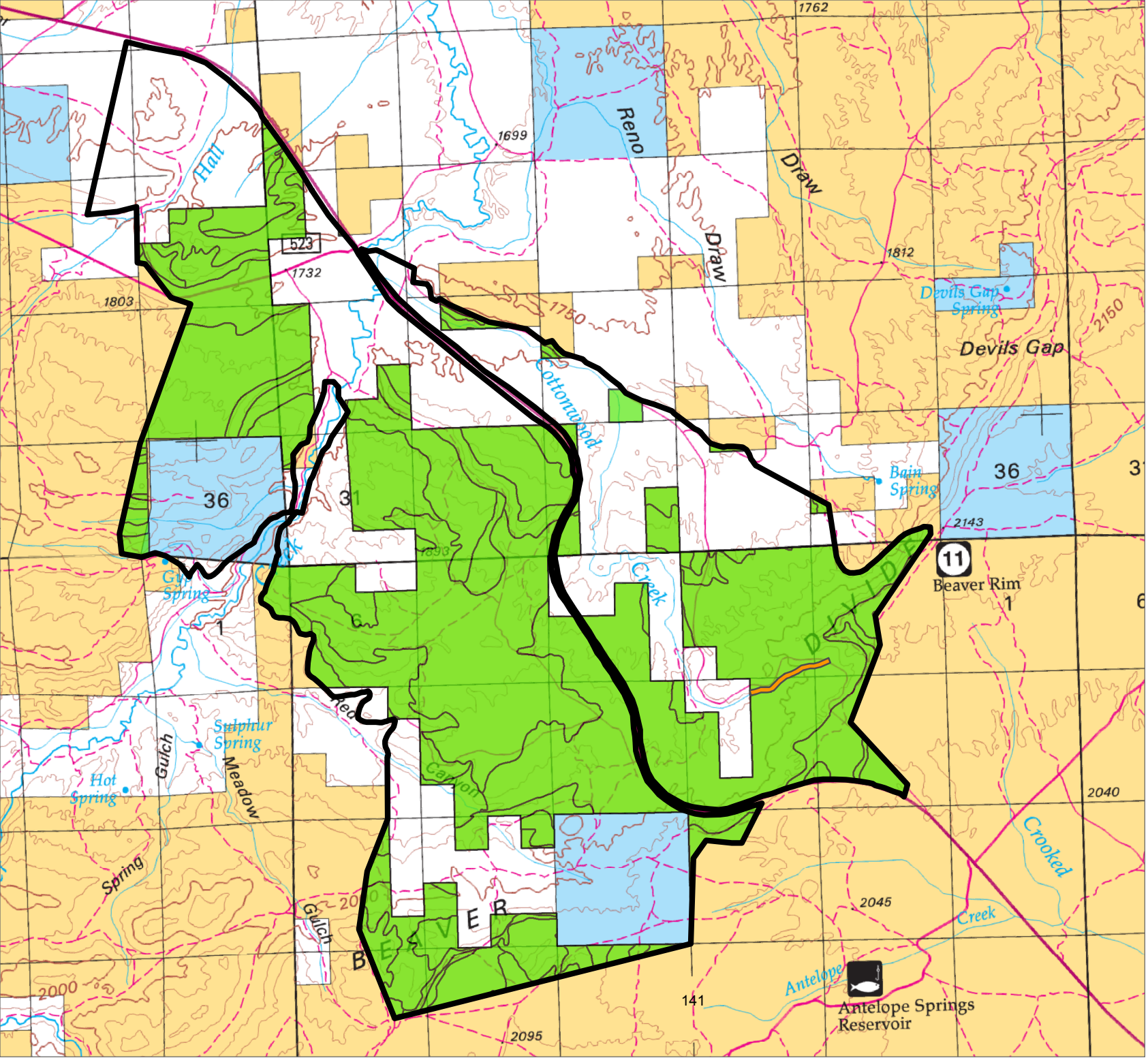
0 1.6
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Cottonwood Basin			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	7,609	16	-
Standard 2: Riparian	31	16	-
Standard 3: Upland	-	7,625	-
Standard 4: Wildlife	31	7,594	-
Standard 5: Water Quality	7,625	-	-
Standard 6: Air Quality	7,625	-	-



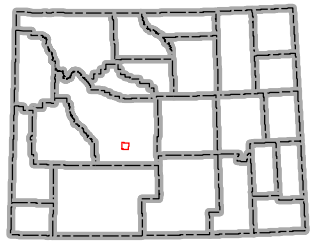
Upper Sweetwater Standards & Guidelines

Cottonwood Basin Soils

- Allotment Boundary
- Met 7609 Acres
- Not Met 16 Acres

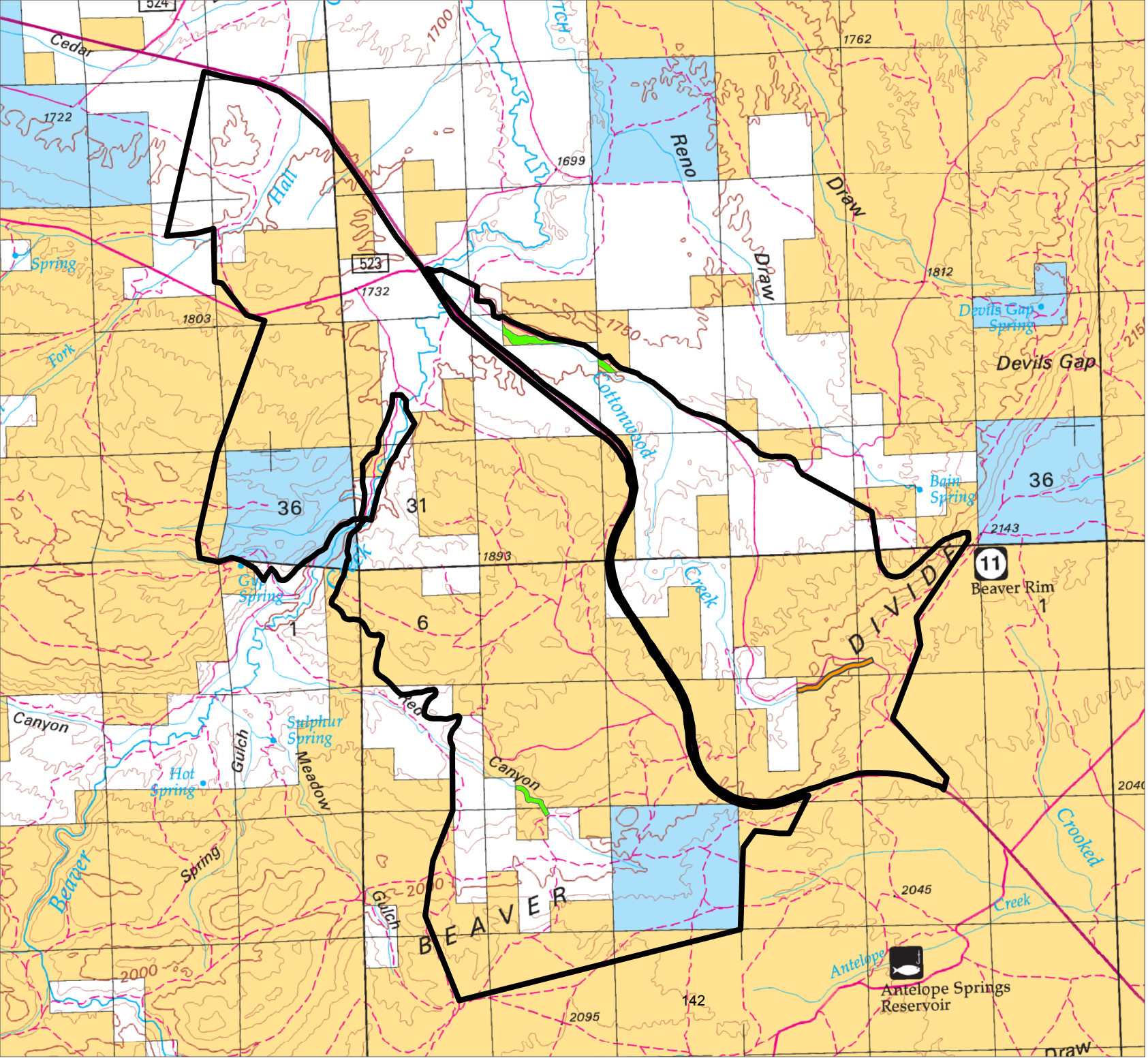
N

0 0.8
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



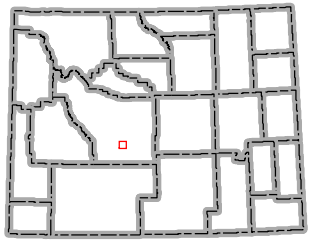
Upper Sweetwater Standards & Guidelines

Cottonwood Basin Riparian

- Allotment Boundary
- Met 31 Acres
- Not Met 16 Acres

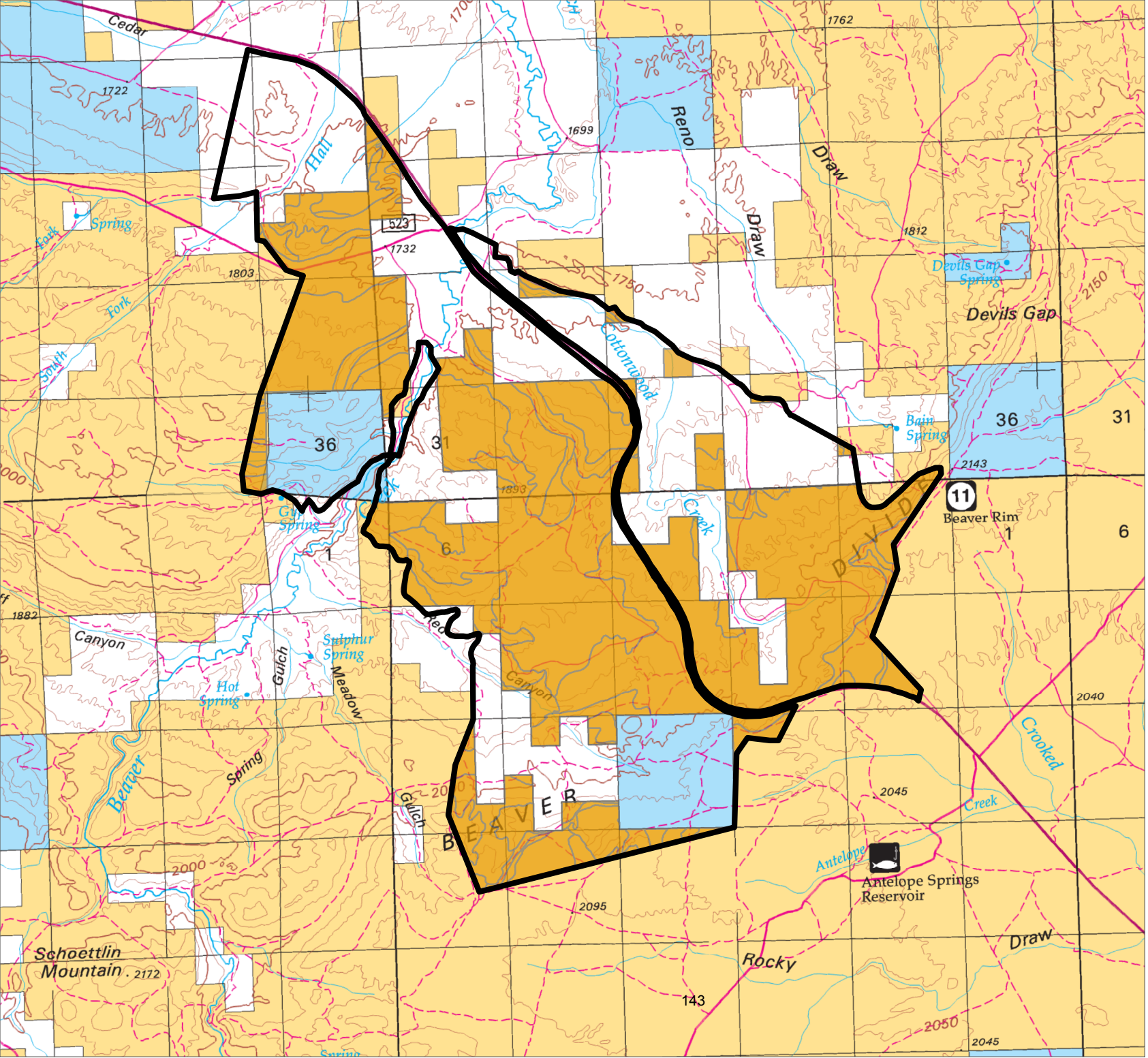
N

0 0.8
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



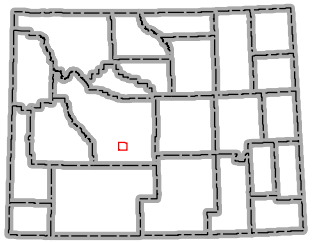
Upper Sweetwater Standards & Guidelines

Cottonwood Basin Upland

- Allotment Boundary
- Met 0 Acres
- Not Met 7625 Acres

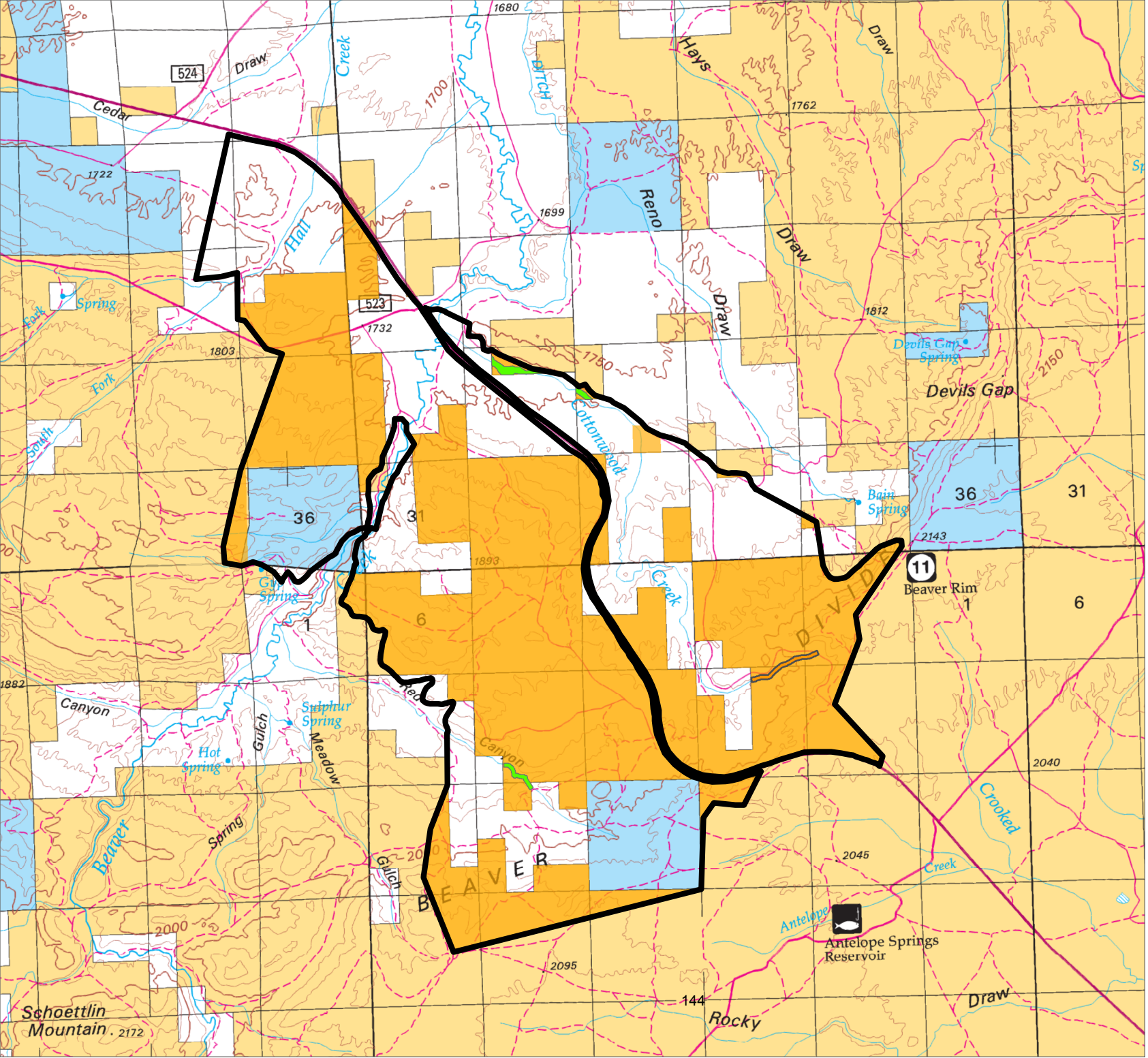
N

0 0.9
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



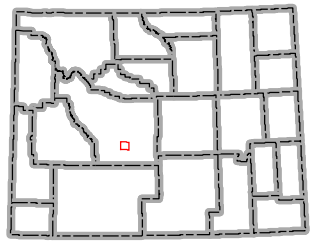
Upper Sweetwater Standards & Guidelines

Cottonwood Basin Wildlife

- Allotment Boundary
- Met 31 Acres
- Not Met 7594 Acres
- Unknown 0 Acres

N

0 0.9
Miles



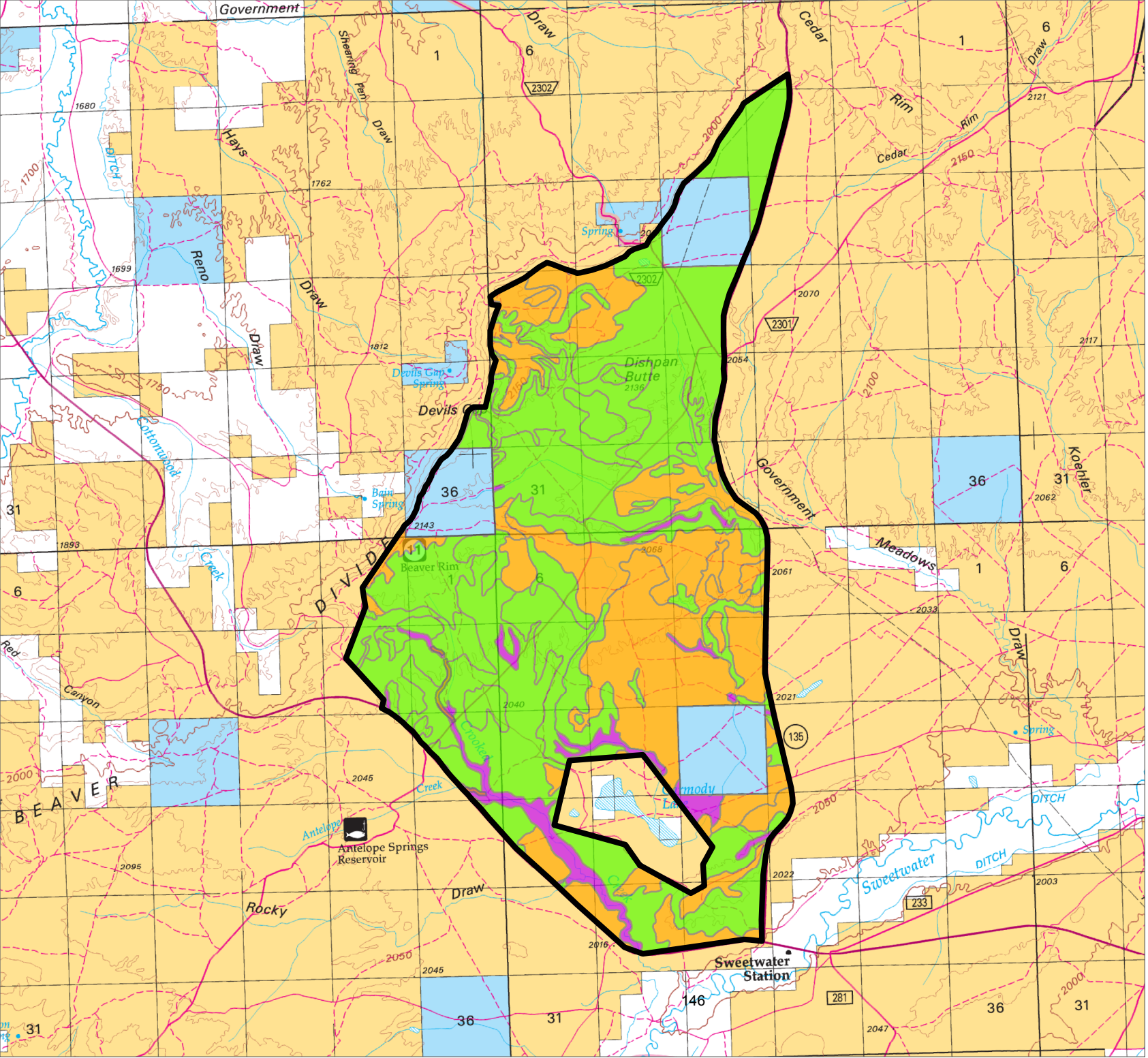
Date: 5/6/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Dishpan Butte			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	9,704	4,905	646
Standard 2: Riparian	-	31	-
Standard 3: Upland	3,578	11,000	677
Standard 4: Wildlife	3,578	11,016	661
Standard 5: Water Quality	15,255	-	-
Standard 6: Air Quality	15,255	-	-

Upper Sweetwater Standards & Guidelines

Dishpan Butte Soils



Allotment Boundary

Met 9704 Acres

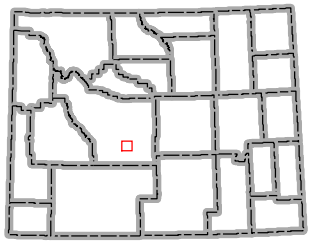
Not Met 4905 Acres

Unknown 646 Acres

N

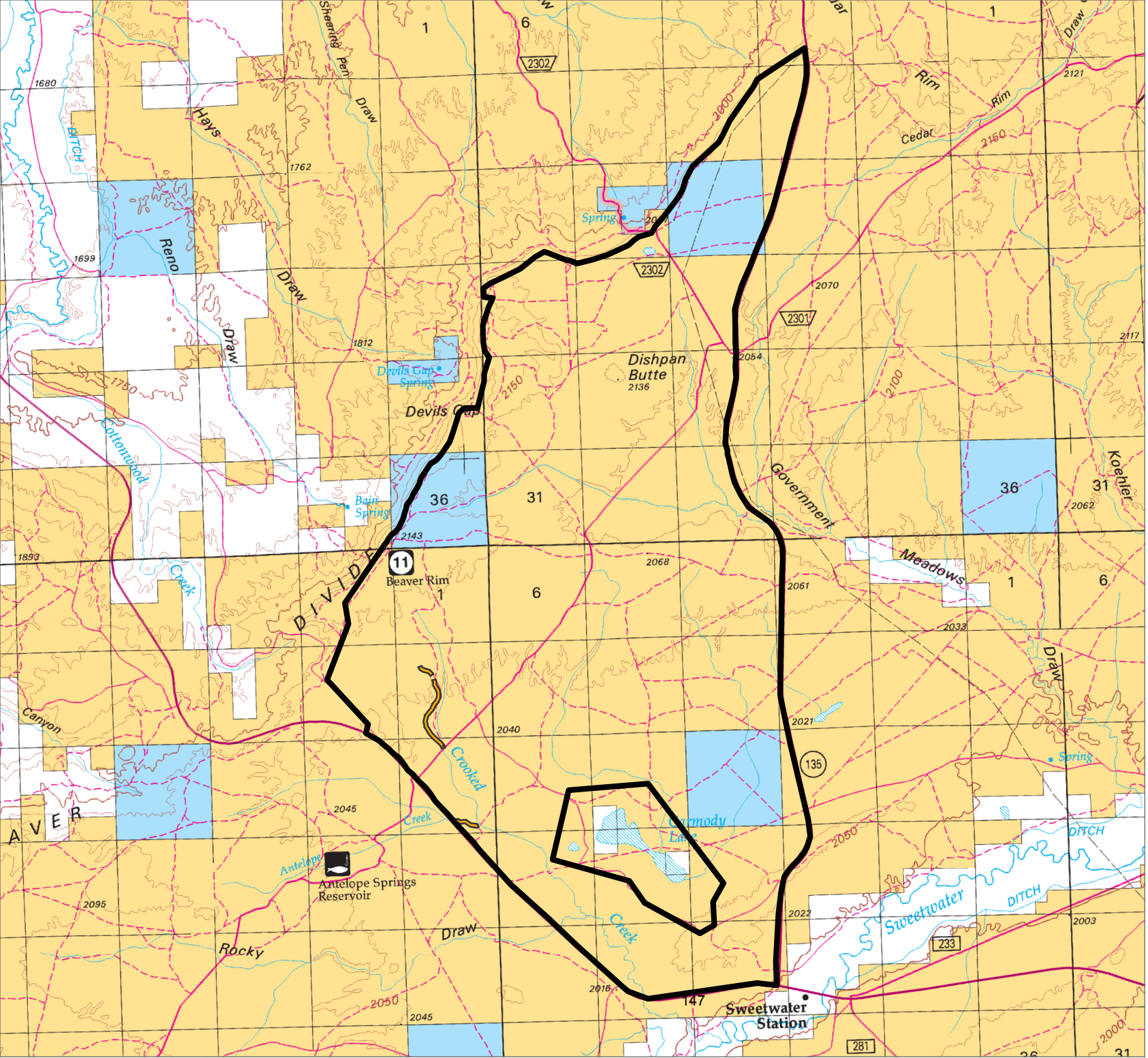
0 1.2

Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



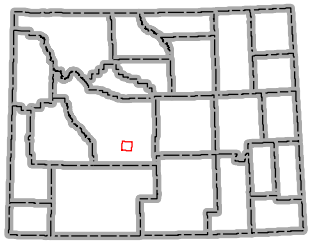
Upper Sweetwater Standards & Guidelines

Dishpan Butte Riparian

- Allotment Boundary
- Met 0 Acres
- Not Met 31 Acres

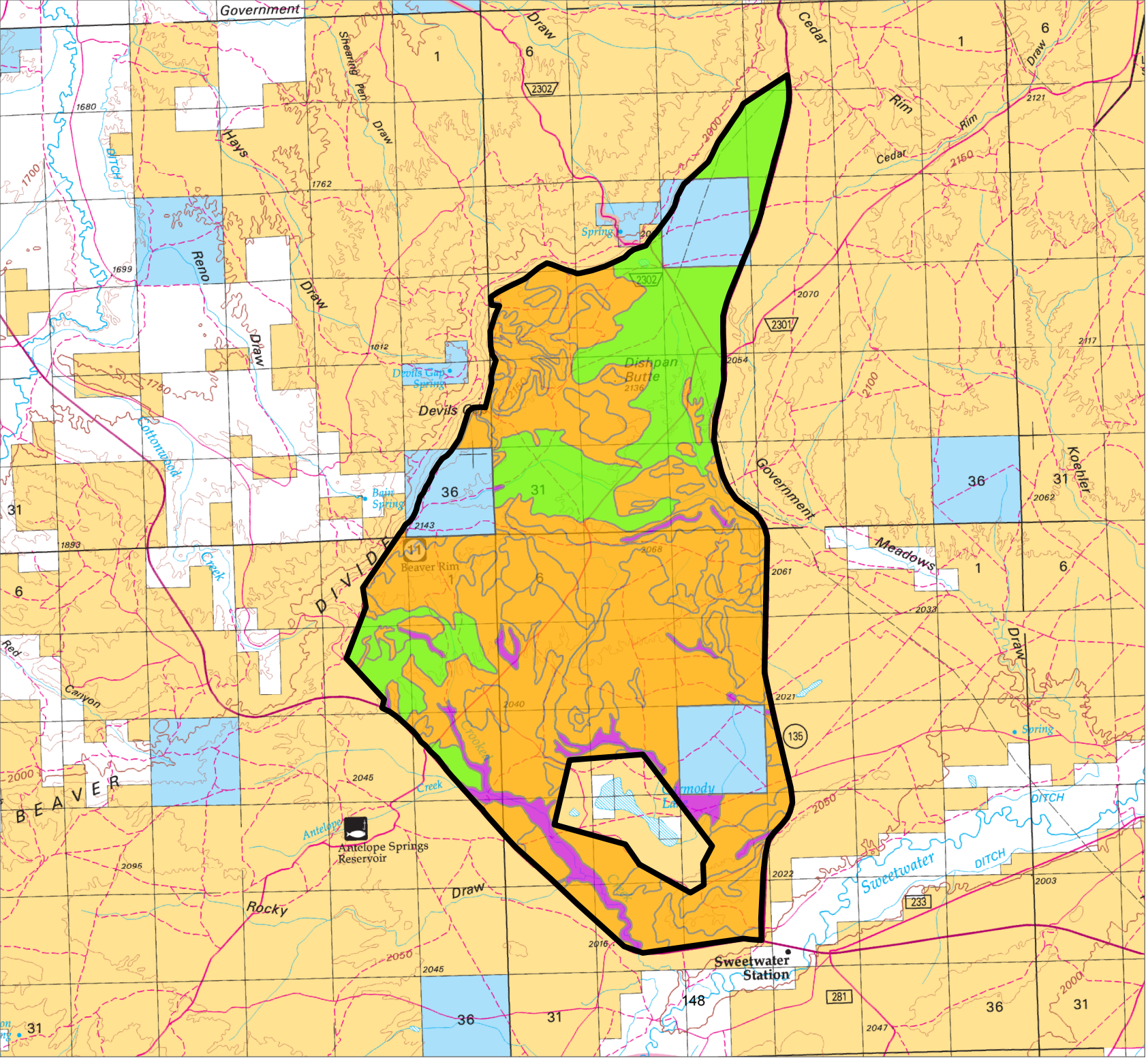
N

0 1.1
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



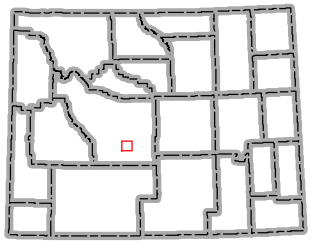
Upper Sweetwater Standards & Guidelines

Dishpan Butte Upland

- Allotment Boundary
- Met 3578 Acres
- Not Met 11000 Acres
- Unknown 677 Acres

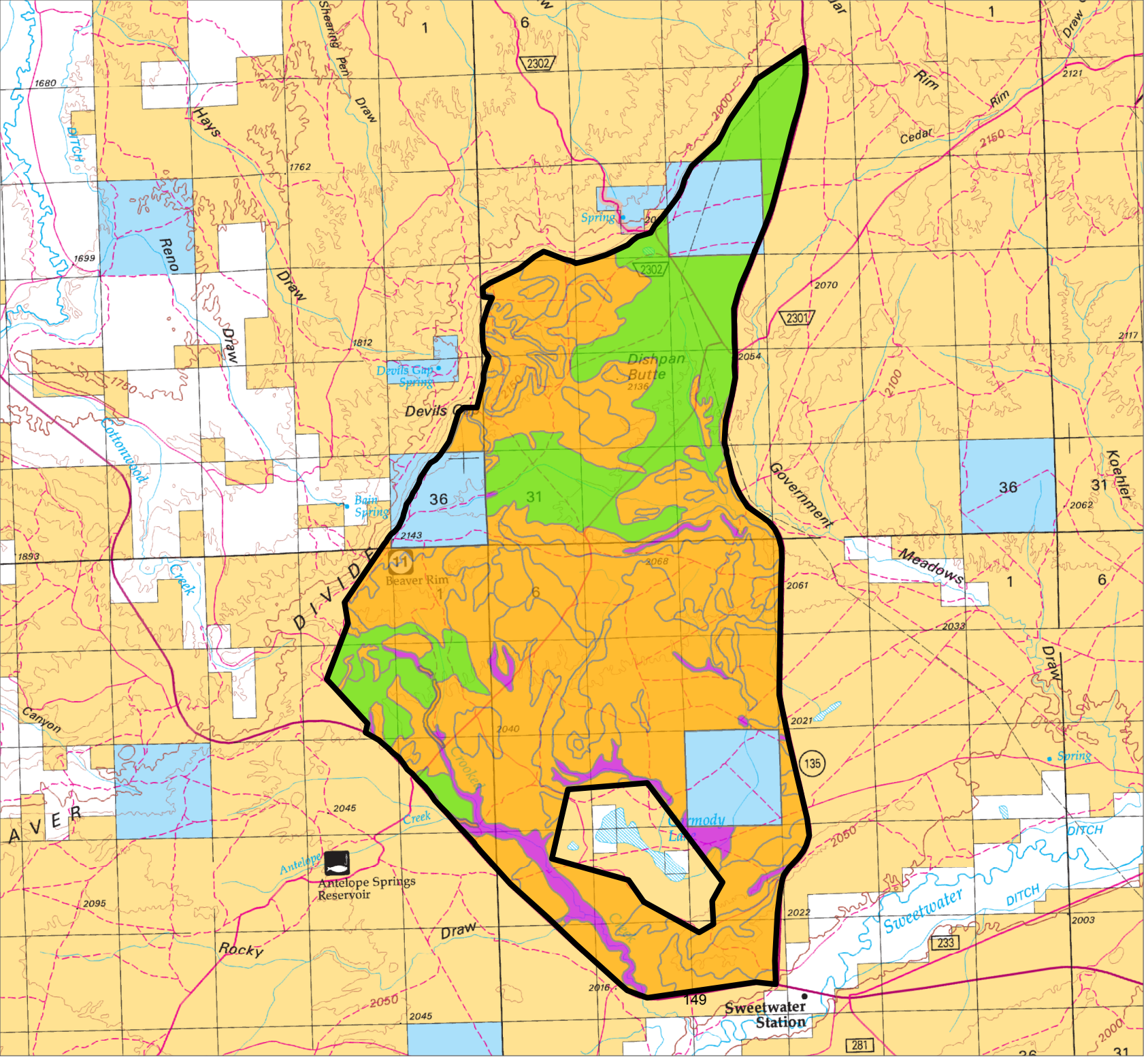
N

0 1.2
Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



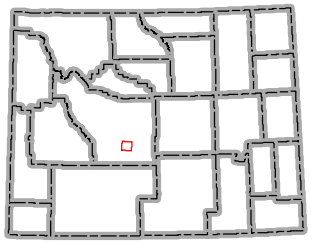
Upper Sweetwater Standards & Guidelines

Dishpan Butte Wildlife

- Allotment Boundary
- Met 3578 Acres
- Not Met 11016 Acres
- Unknown 661 Acres

N

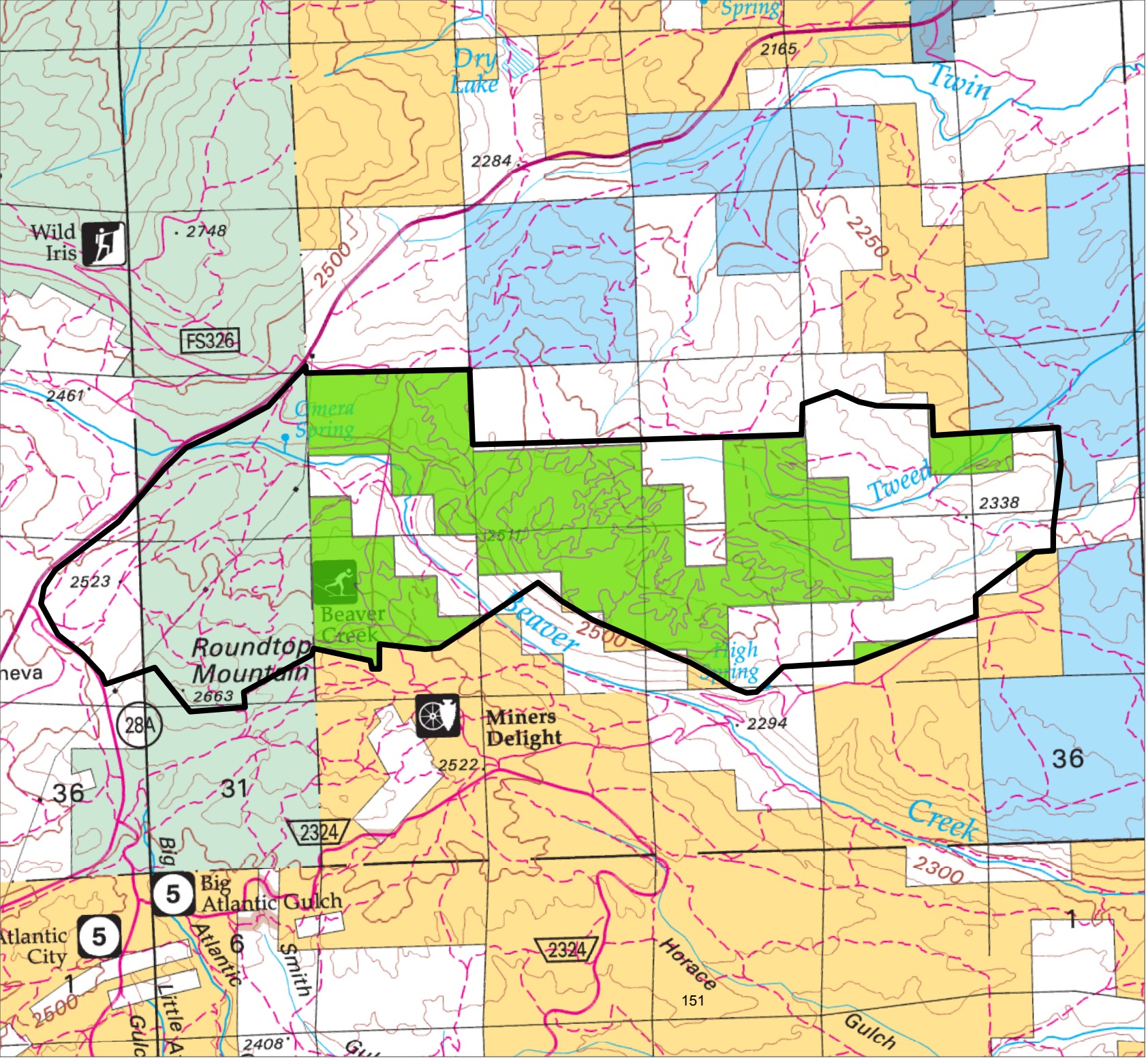
0 1.1
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Ellis Upper Beaver			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	2,198	-	-
Standard 2: Riparian	61	-	-
Standard 3: Upland	-	2,198	-
Standard 4: Wildlife	61	2,137	-
Standard 5: Water Quality	2,198	-	-
Standard 6: Air Quality	2,198	-	-



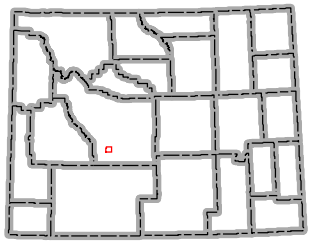
Upper Sweetwater Standards & Guidelines

Ellis Upper Beaver Soils

Allotment Boundary
Met 2198 Acres
Not Met 0 Acres

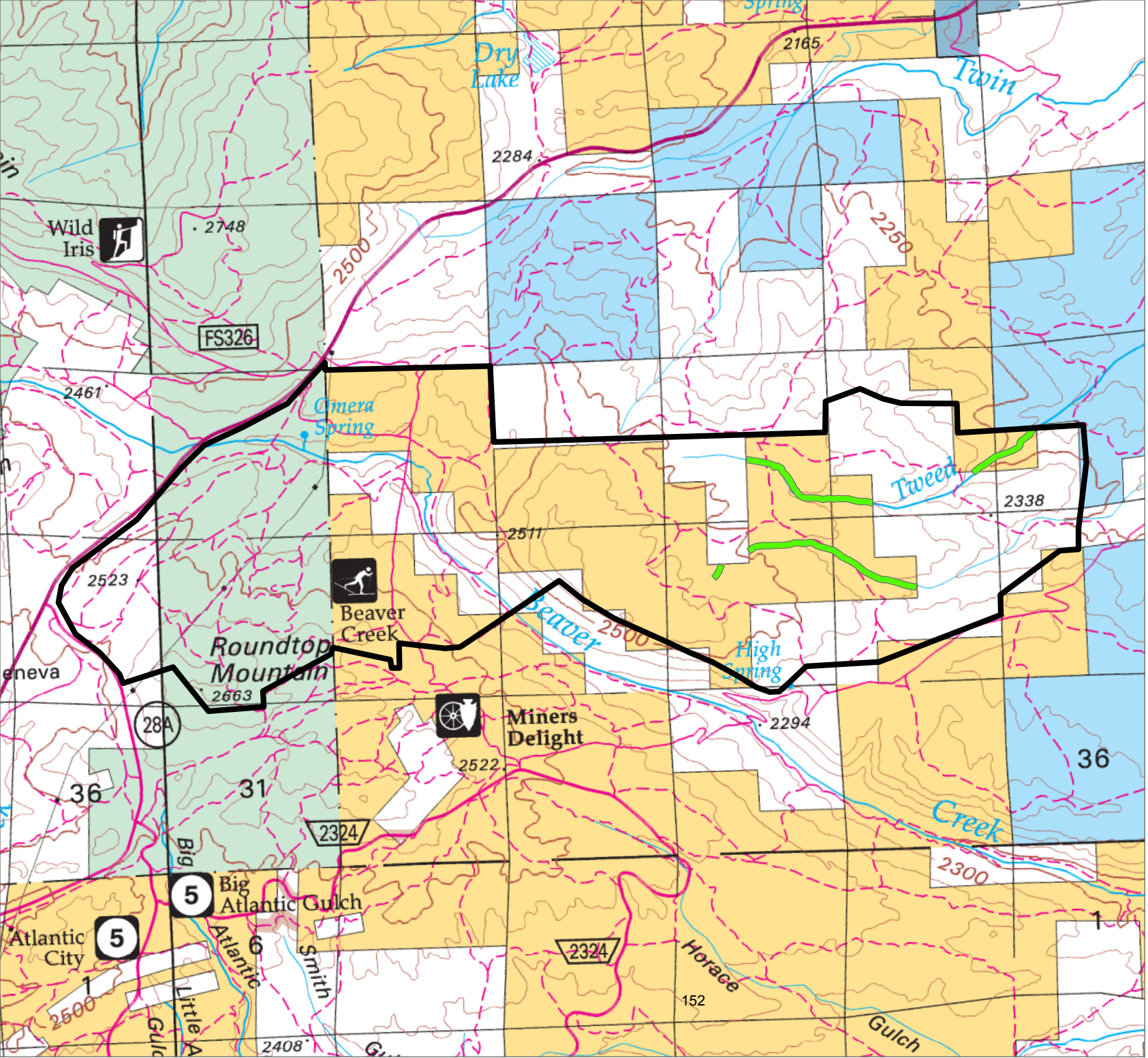
N

0 0.6
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



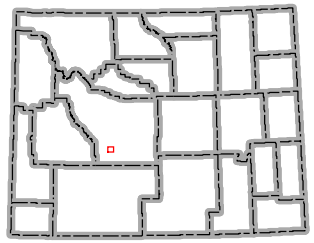
Upper Sweetwater Standards & Guidelines

Ellis Upper Beaver Riparian

- Allotment Boundary
- Met 61 Acres
- Not Met 0 Acres

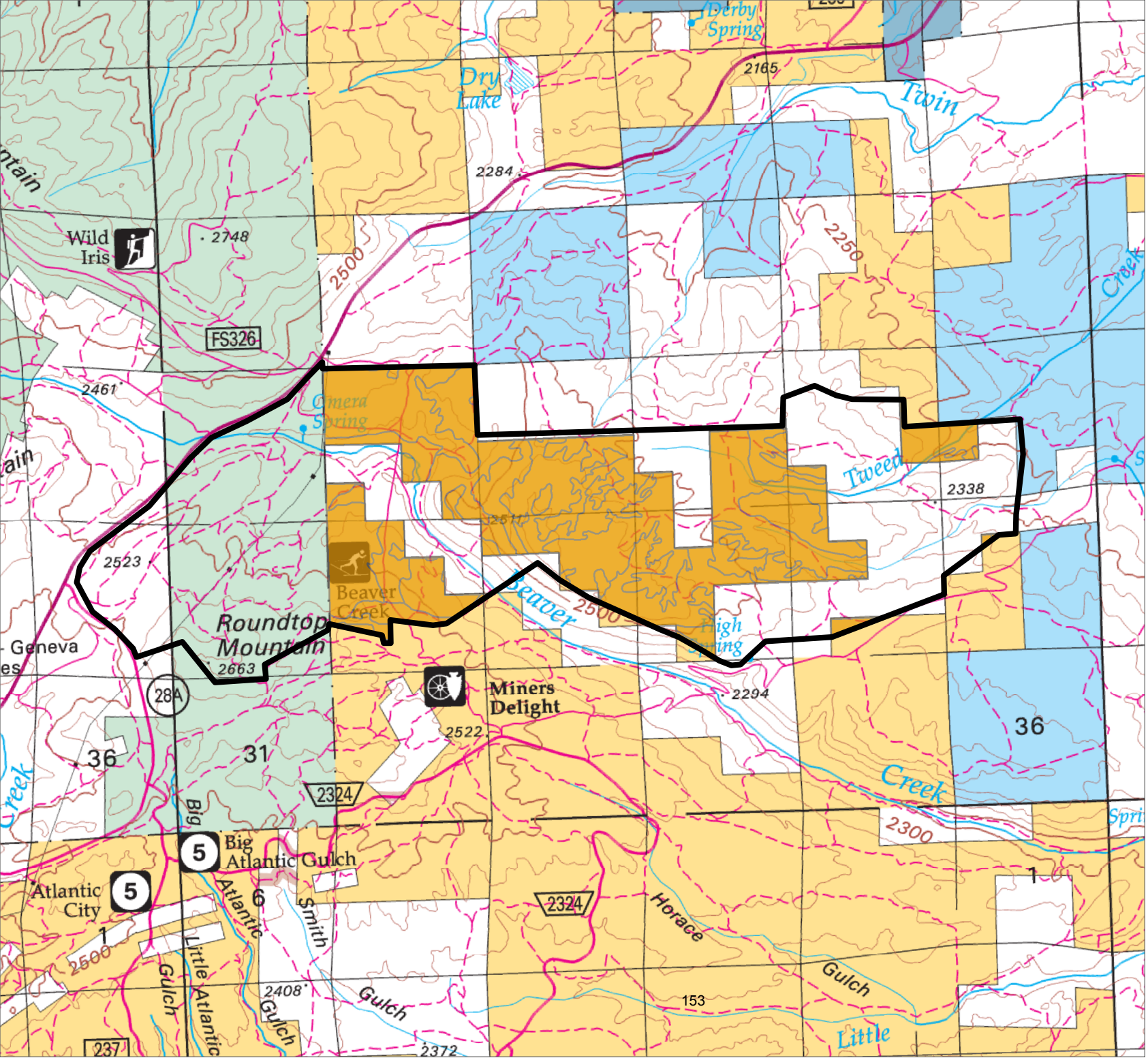
N

0 0.6
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



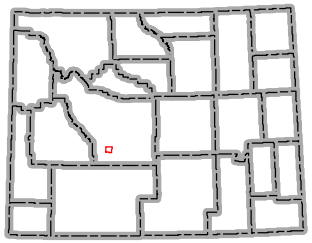
Upper Sweetwater Standards & Guidelines

Ellis Upper Beaver Upland

Allotment Boundary
Met 0 Acres
Not Met 2198 Acres

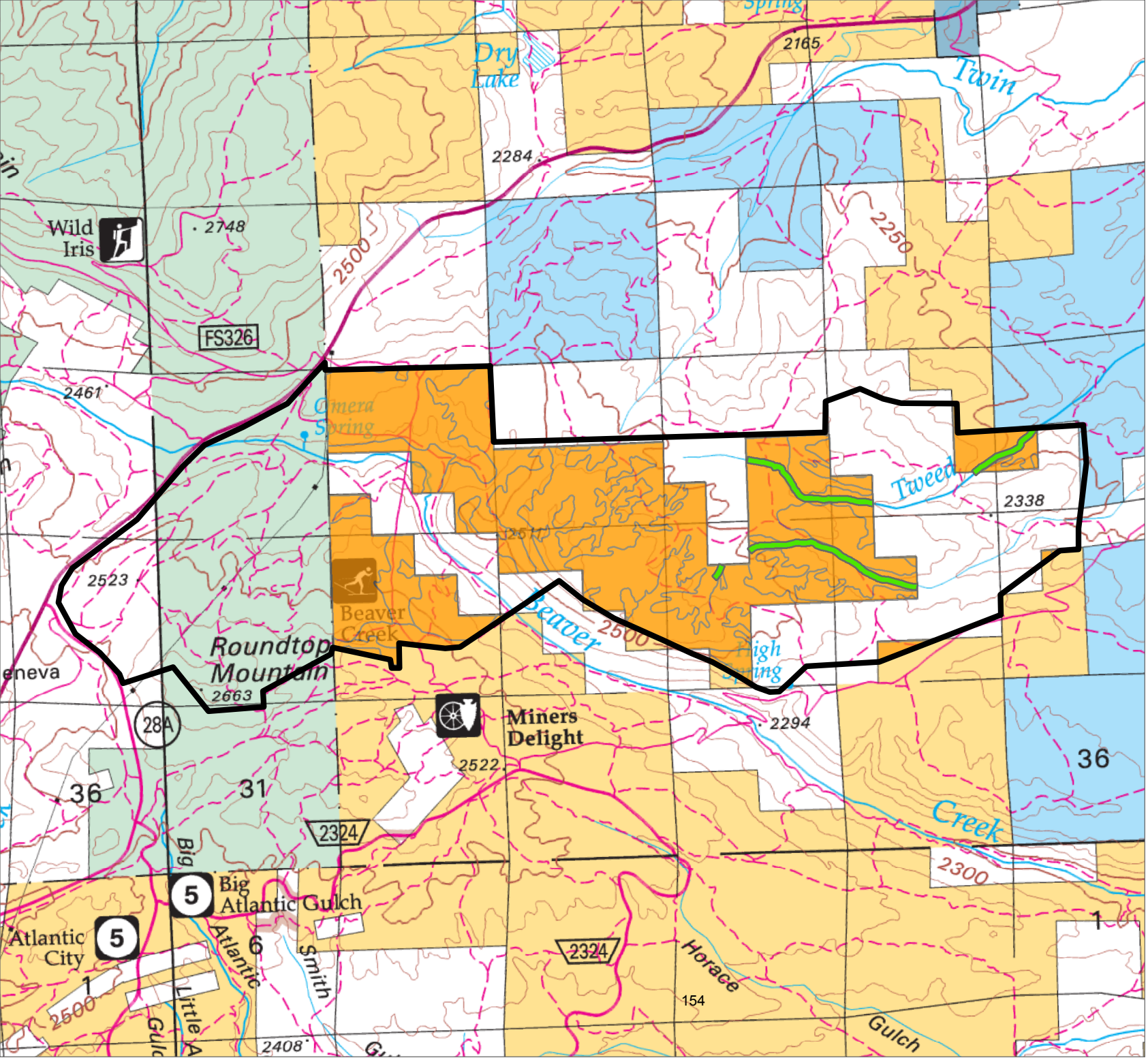
N

0 0.7
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



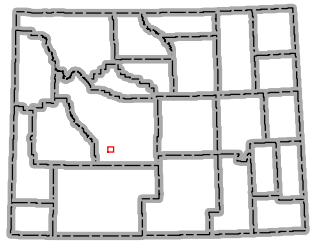
Upper Sweetwater Standards & Guidelines

Ellis Upper Beaver Wildlife

- Allotment Boundary
- Met 61 Acres
- Not Met 2137 Acres
- Unknown 0 Acres

N

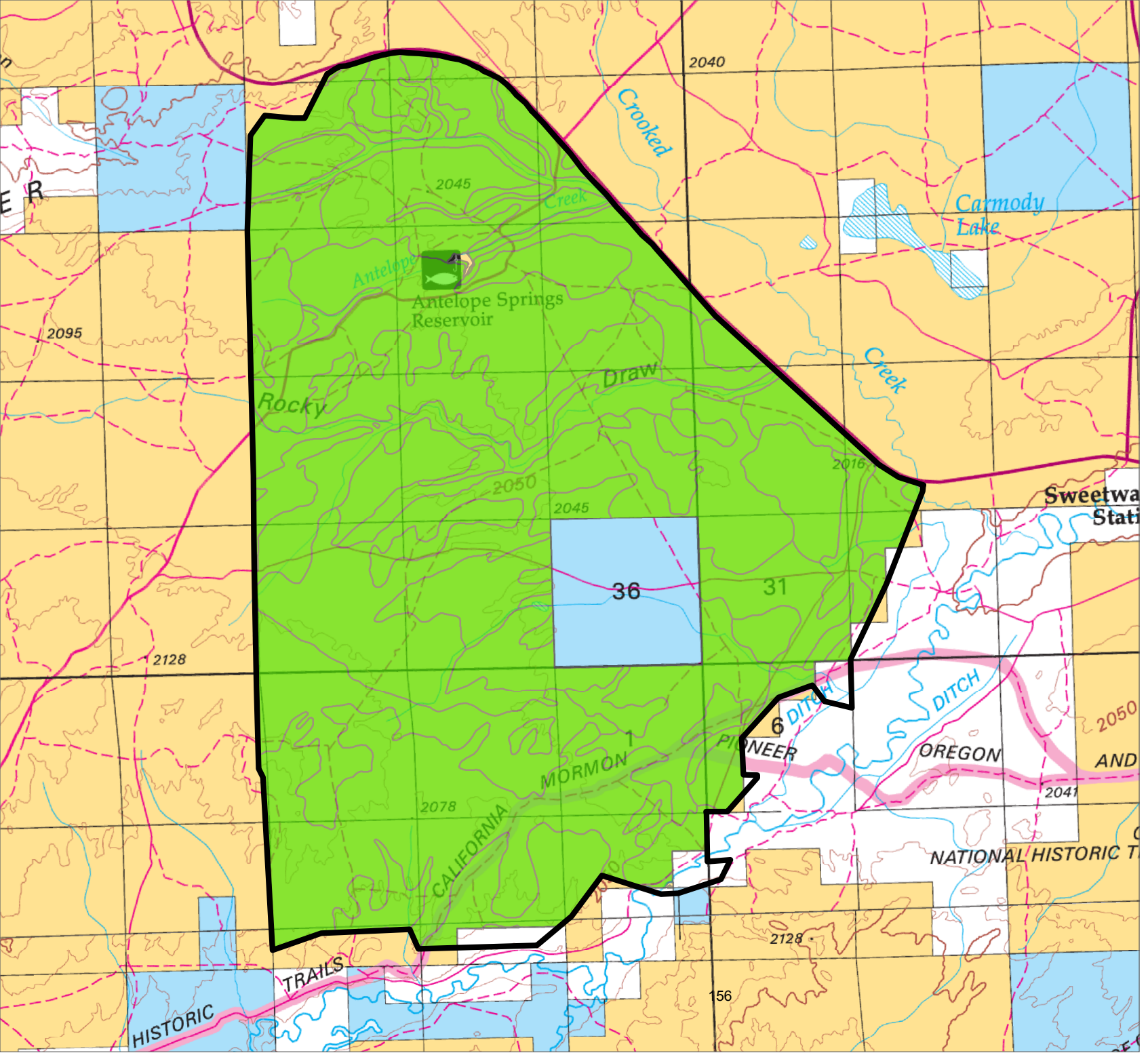
0 0.6
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Flagg AMP			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	11,463	-	-
Standard 2: Riparian	11	-	-
Standard 3: Upland	-	11,463	-
Standard 4: Wildlife	11	11,463	
Standard 5: Water Quality	11,474	-	-
Standard 6: Air Quality	11,474	-	-



Upper Sweetwater Standards & Guidelines

Flagg AMP Soils

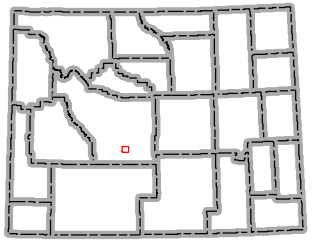
Allotment Boundary

Met 11463 Acres

Not Met 0 Acres

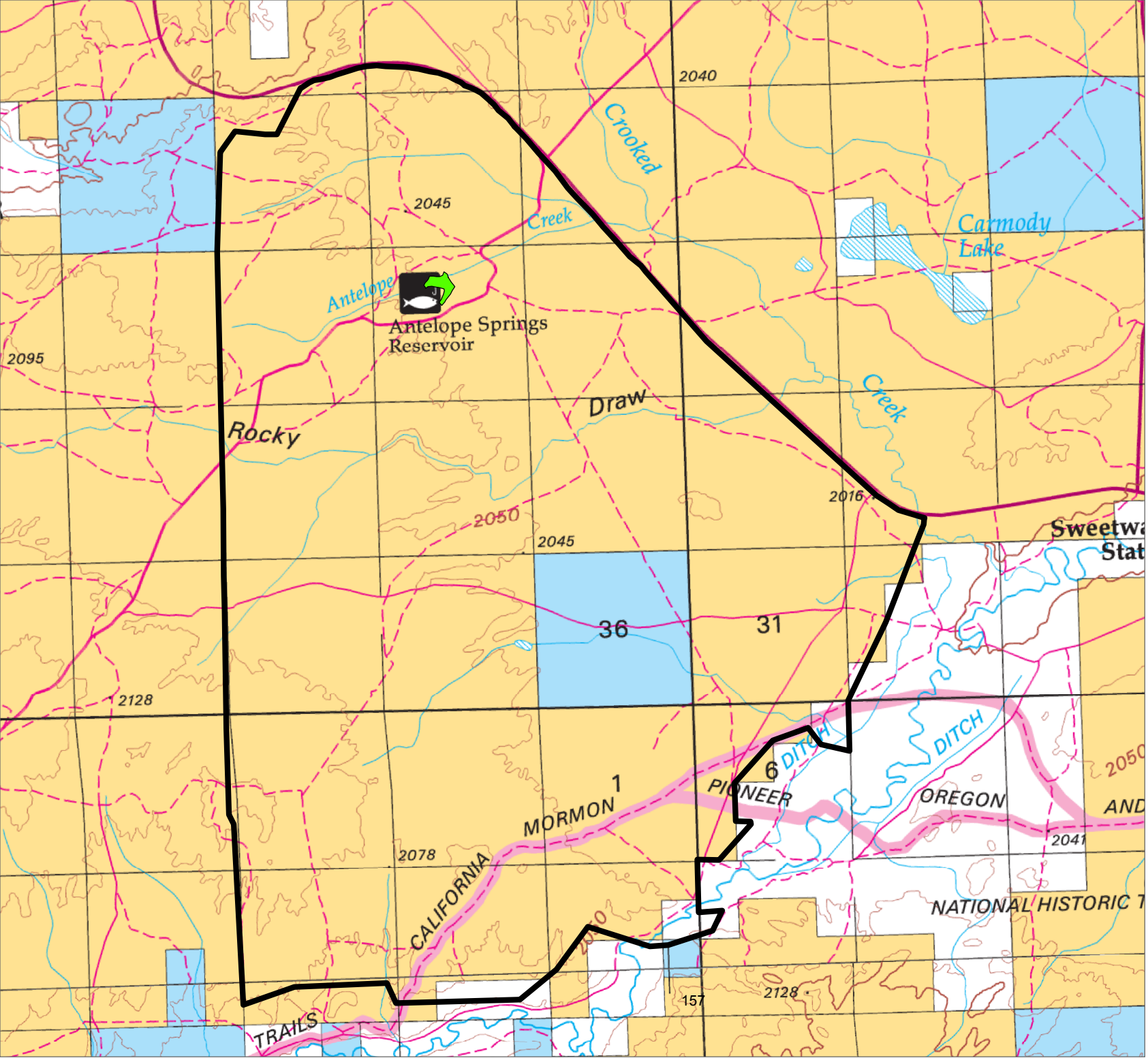
N

0 0.7 Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Flagg AMP Riparian

Allotment Boundary

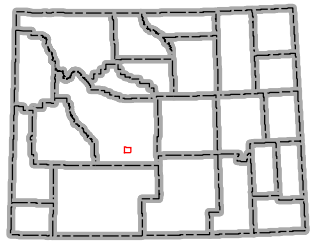
Met 11 Acres

Not Met 0 Acres

N

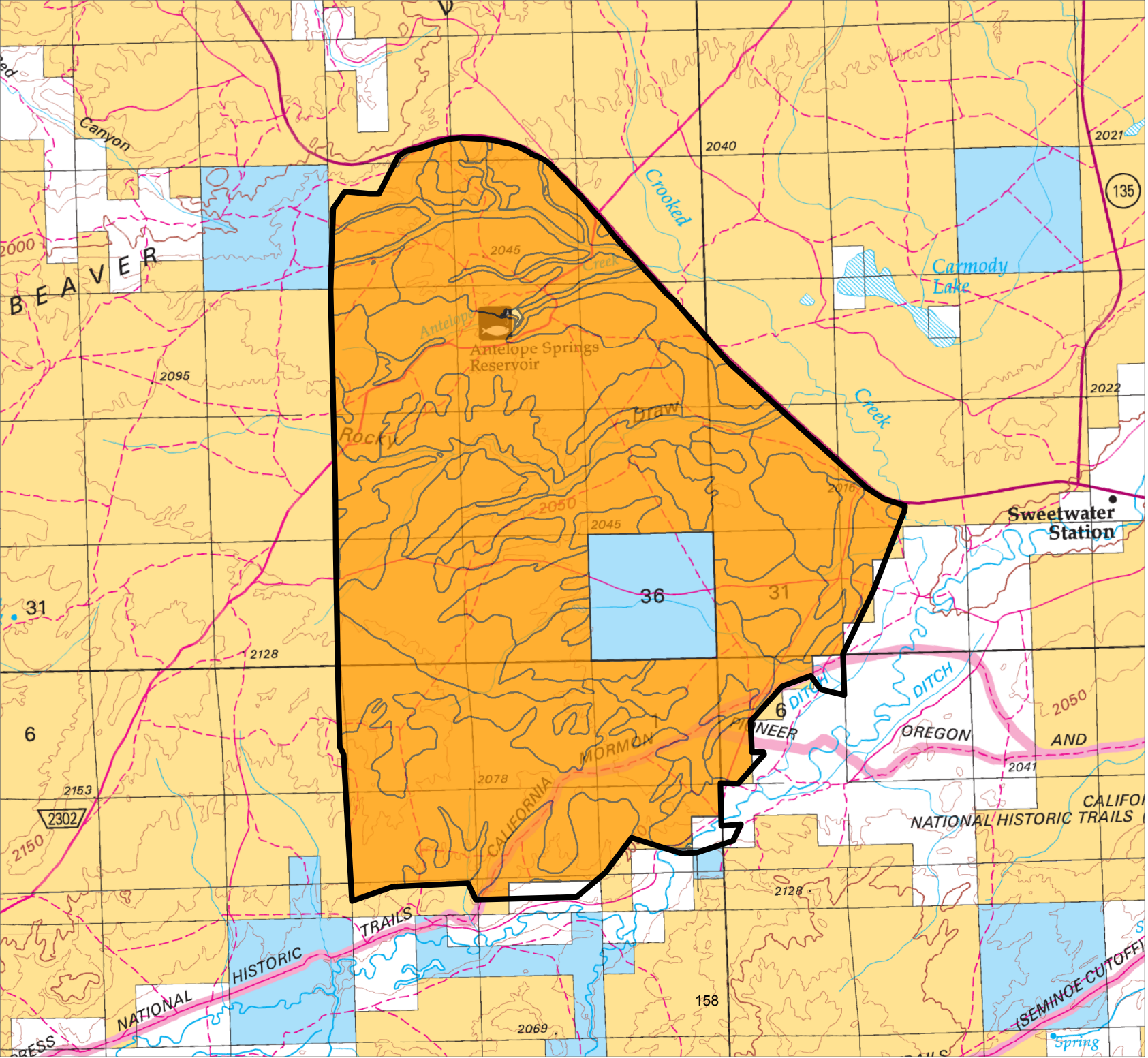
0 0.6

Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Flagg AMP Upland

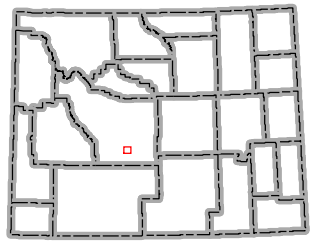
Allotment Boundary

Met 0 Acres

Not Met 11463 Acres

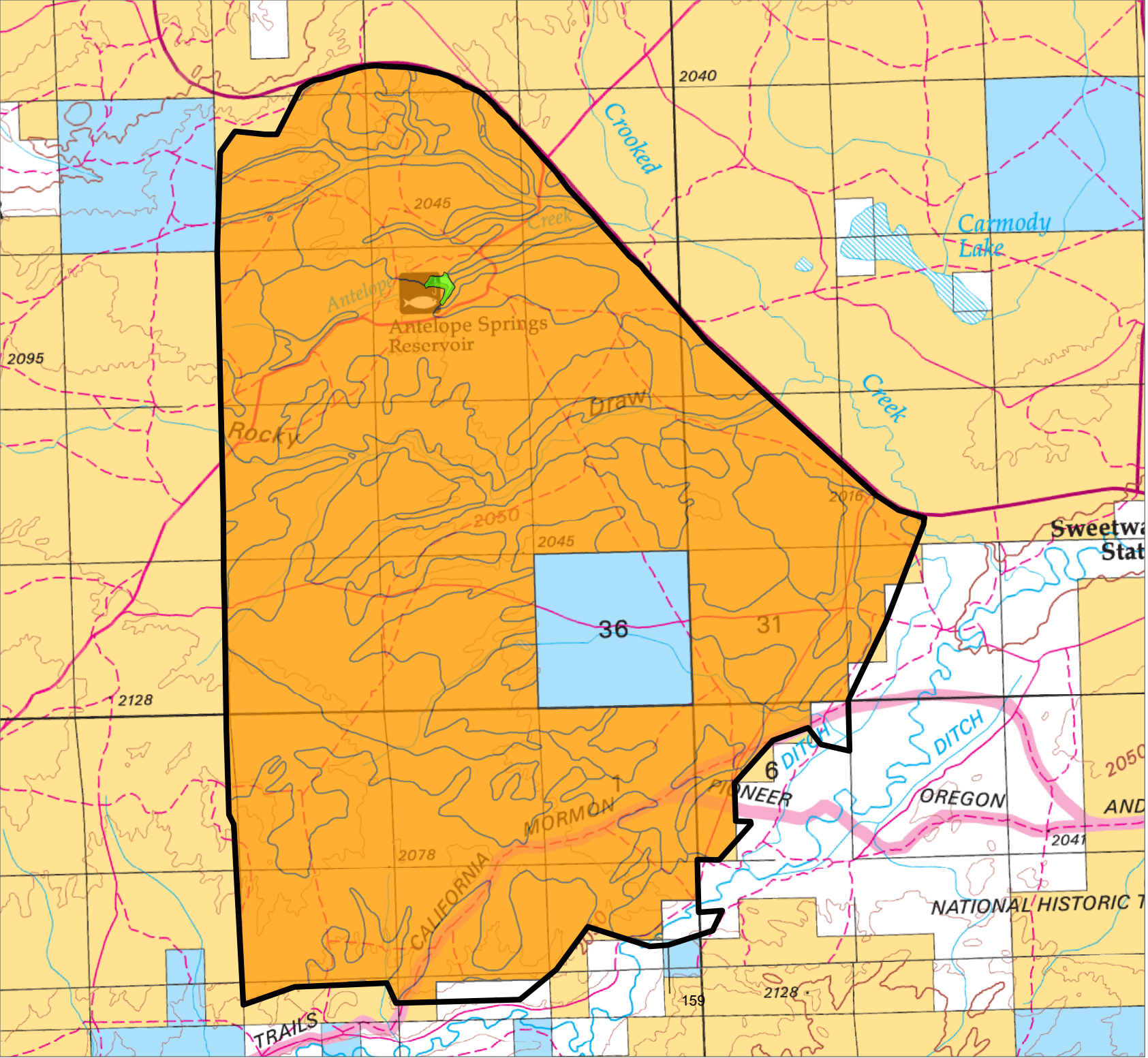
N

0 0.8
Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



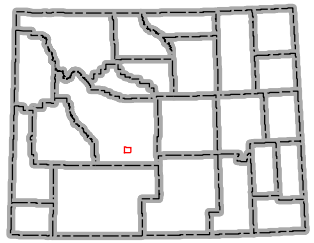
Upper Sweetwater Standards & Guidelines

Flagg AMP Wildlife

- Allotment Boundary
- Met 11 Acres
- Not Met 11463 Acres
- Unknown 0 Acres

N

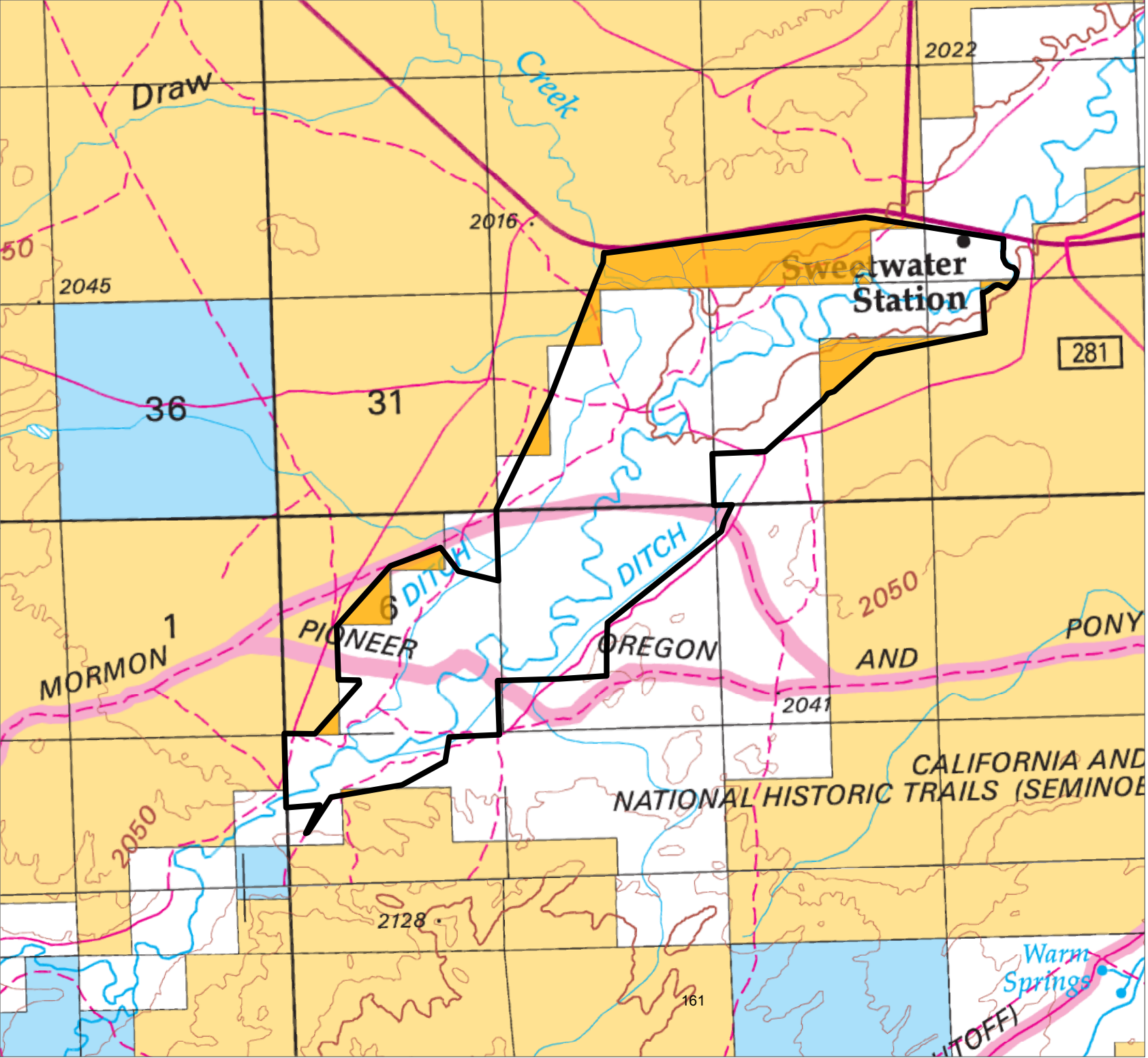
0 0.6 Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Flagg Individual			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	-	298	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	-	298	-
Standard 4: Wildlife	-	298	-
Standard 5: Water Quality	298	-	-
Standard 6: Air Quality	298	-	-



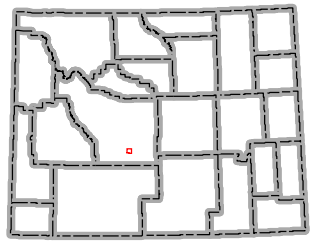
Upper Sweetwater Standards & Guidelines

Flagg Individual Soils

Allotment Boundary
Met 0 Acres
Not Met 298 Acres

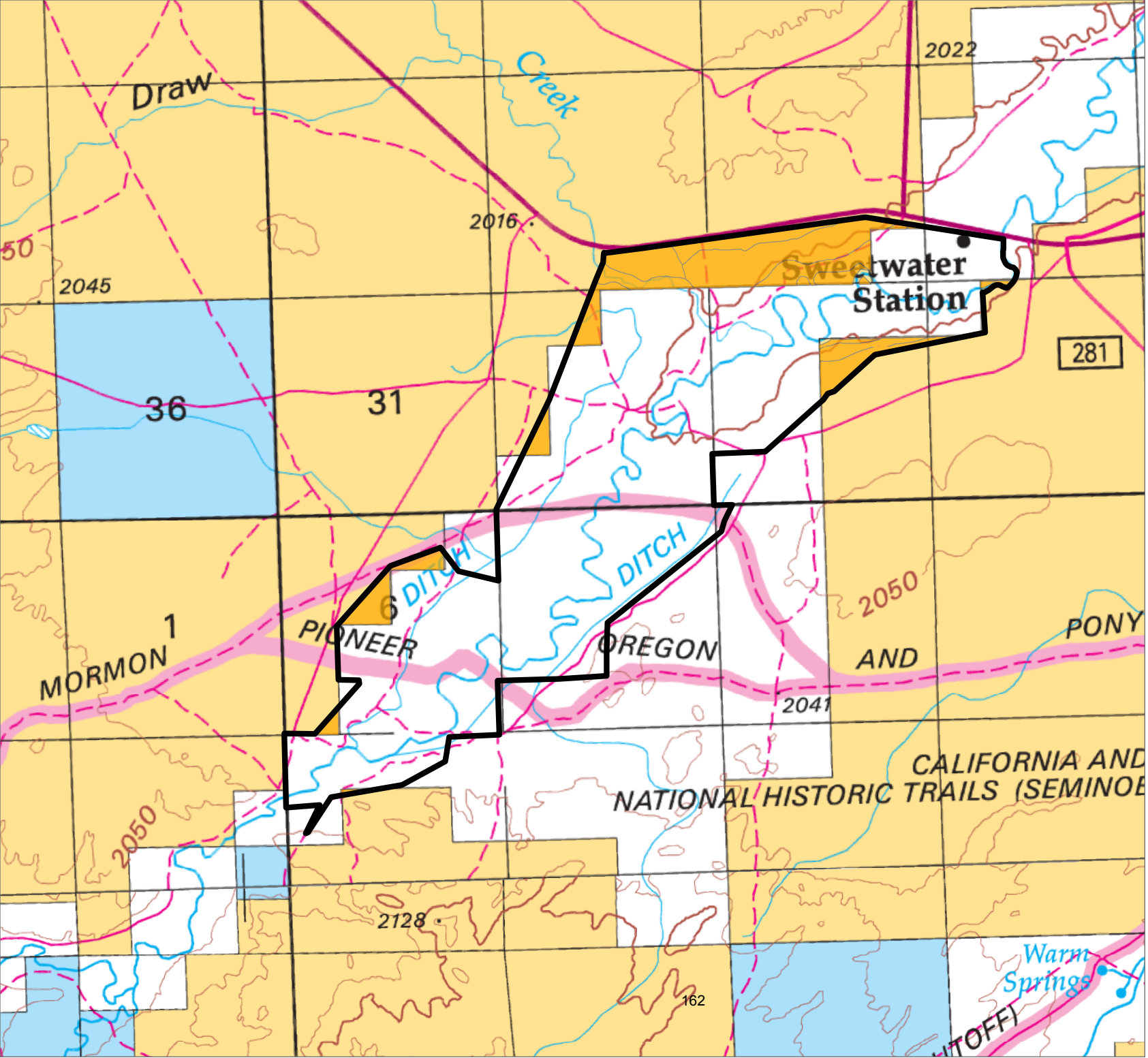
N

0 0.4
Miles



Date: 3/13/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



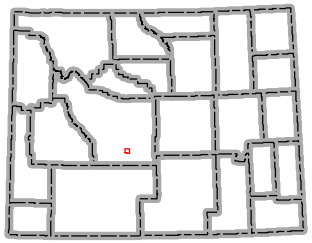
Upper Sweetwater Standards & Guidelines

Flagg Individual Upland

- Allotment Boundary
- Met 0 Acres
- Not Met 298 Acres

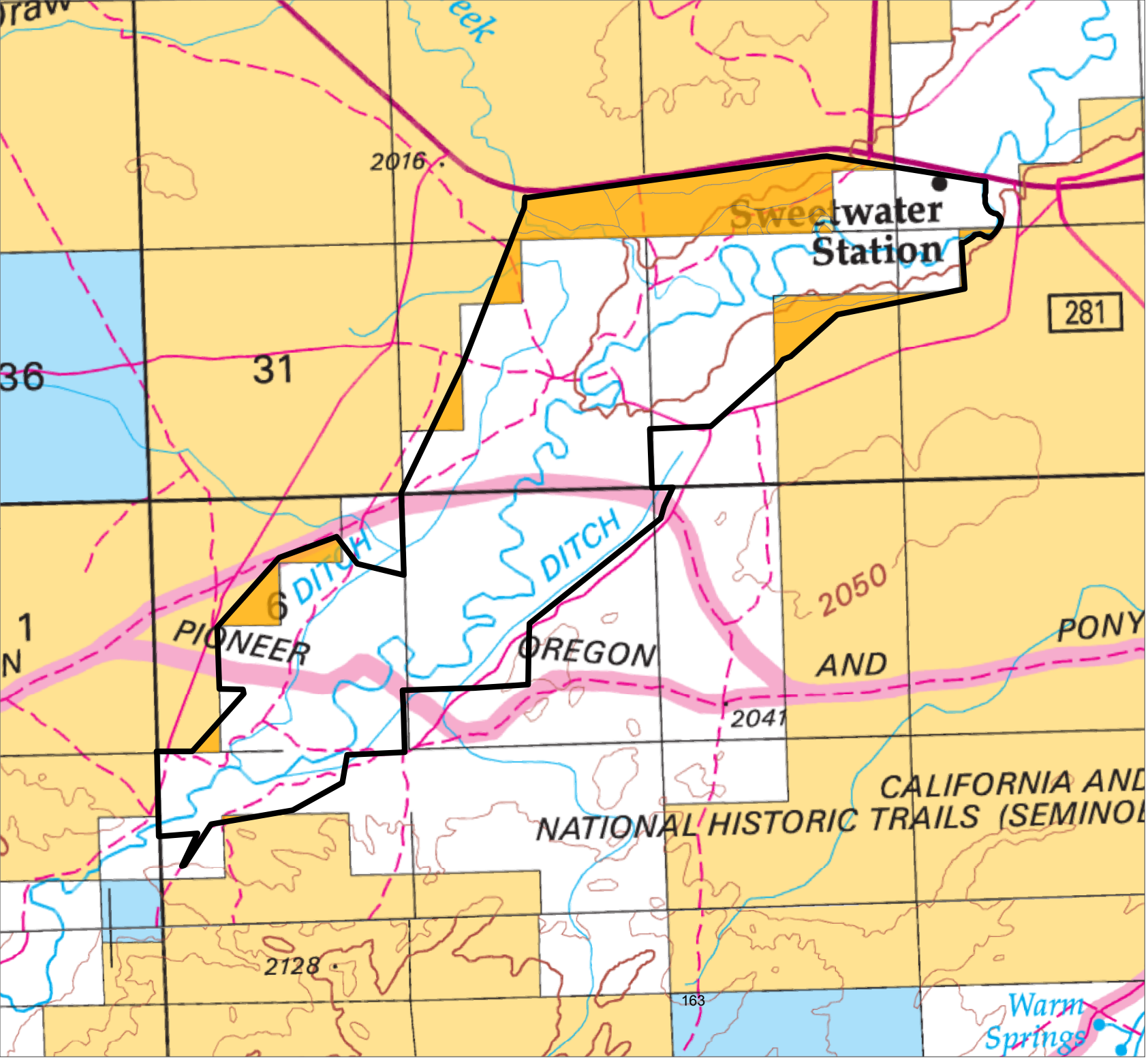
N

0 0.4
Miles



Date: 3/13/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



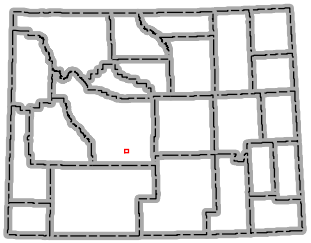
Upper Sweetwater Standards & Guidelines

Flagg Individual Wildlife

- Allotment Boundary
- Met 0 Acres
- Not Met 298 Acres
- Unknown 0 Acres

N

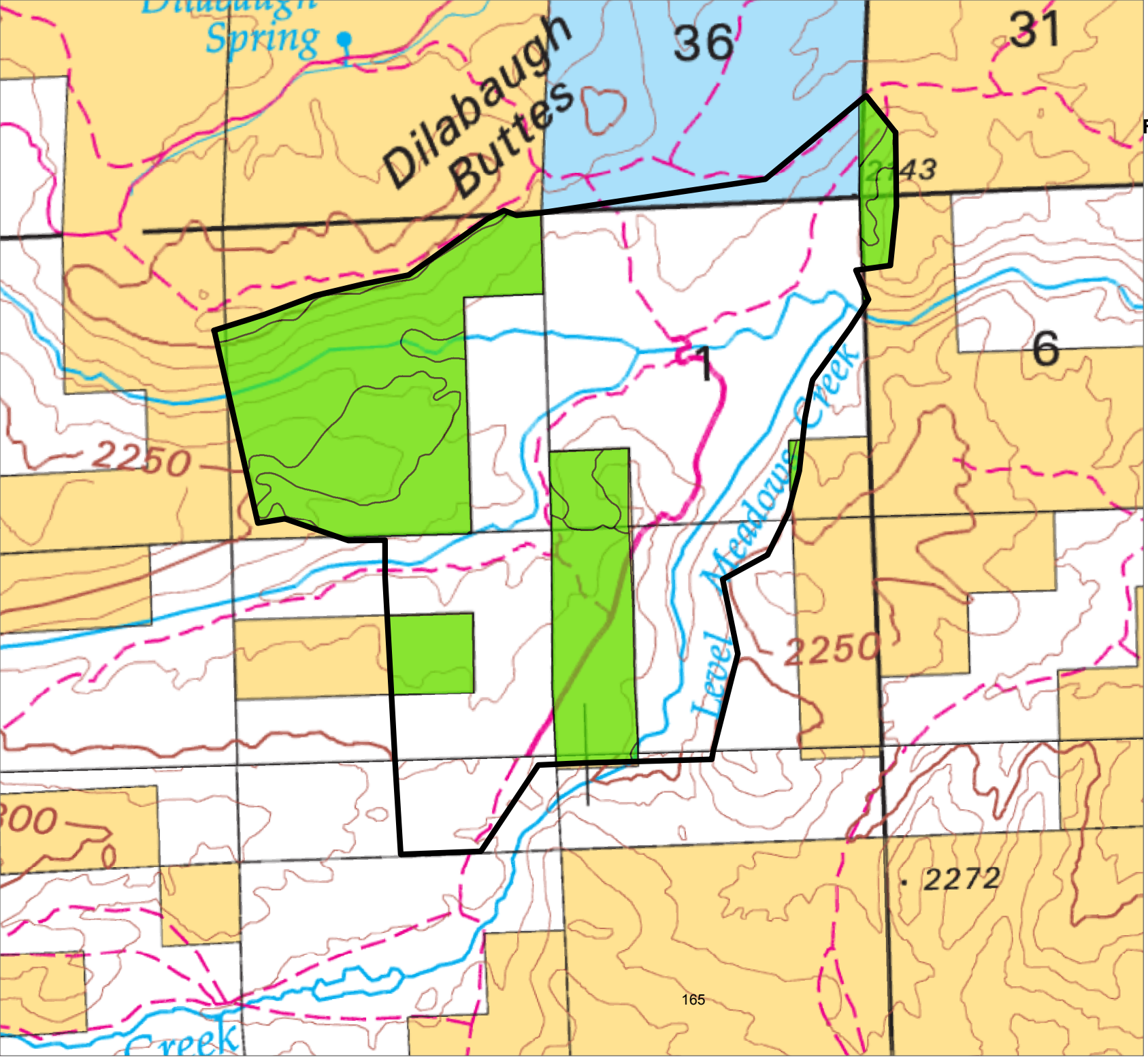
0 0.4
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: French George Crossing			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	626	-	-
Standard 2: Riparian	42	-	-
Standard 3: Upland	-	626	-
Standard 4: Wildlife	42	584	-
Standard 5: Water Quality	626	-	-
Standard 6: Air Quality	626	-	-



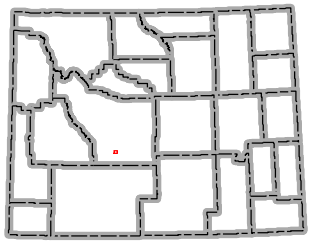
Upper Sweetwater Standards & Guidelines

French George Crosssing Soils

Allotment Boundary
Met 626 Acres
Not Met 0 Acres

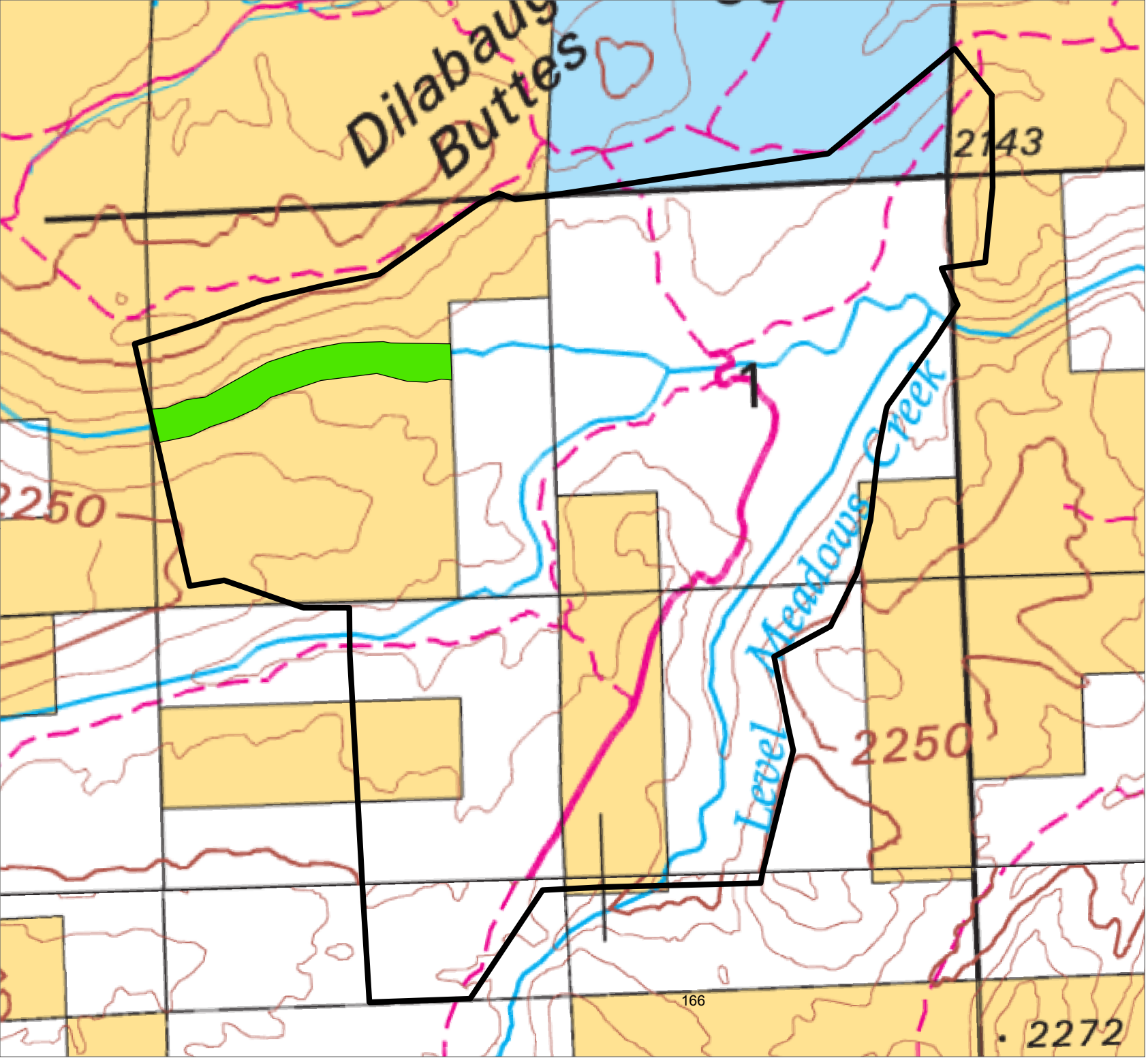
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

French George Crossing Riparian

Allotment Boundary

Met 42 Acres

Not Met 0 Acres

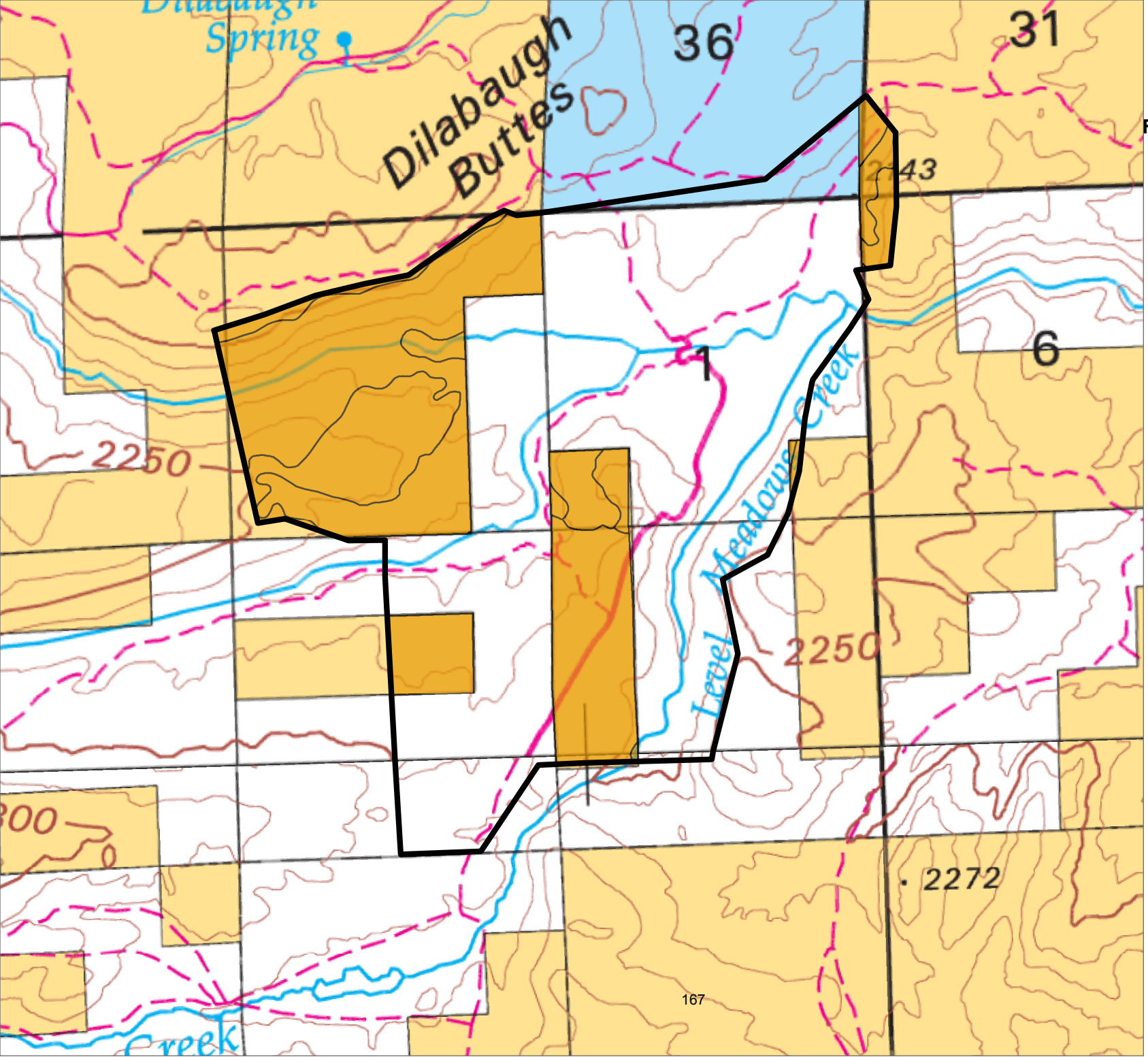
N

0 0.2

Miles

Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



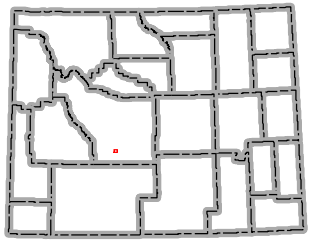
Upper Sweetwater Standards & Guidelines

French George Crosssing Uplands

Allotment Boundary
Met 0 Acres
Not Met 626 Acres

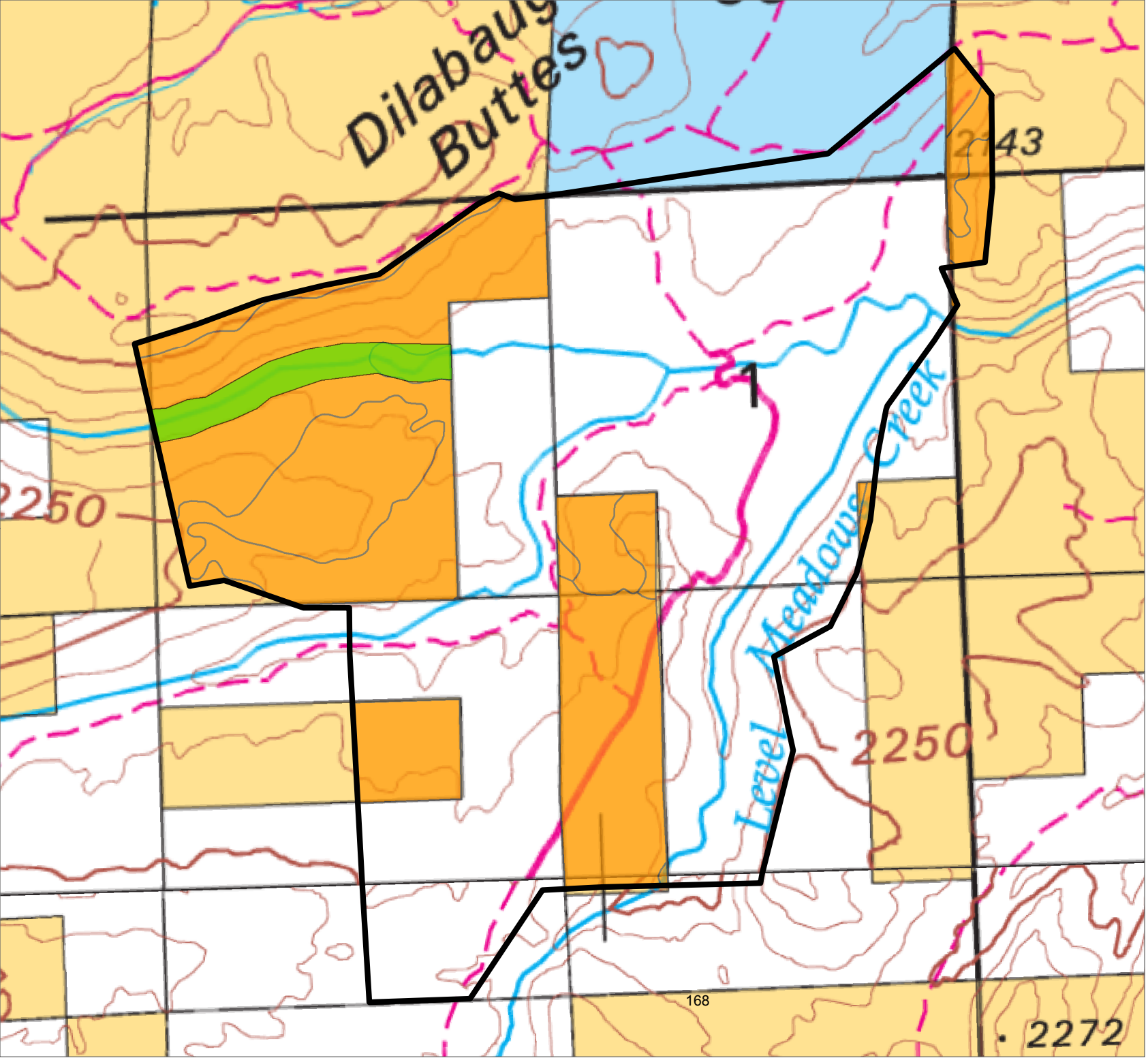
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



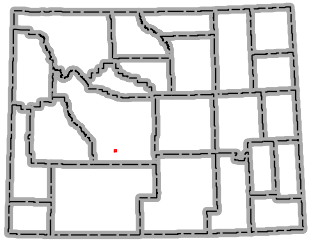
Upper Sweetwater Standards & Guidelines

French George Crossing Wildlife

Allotment Boundary
Met 42 Acres
Not Met 584 Acres
Unknown 0 Acres

N

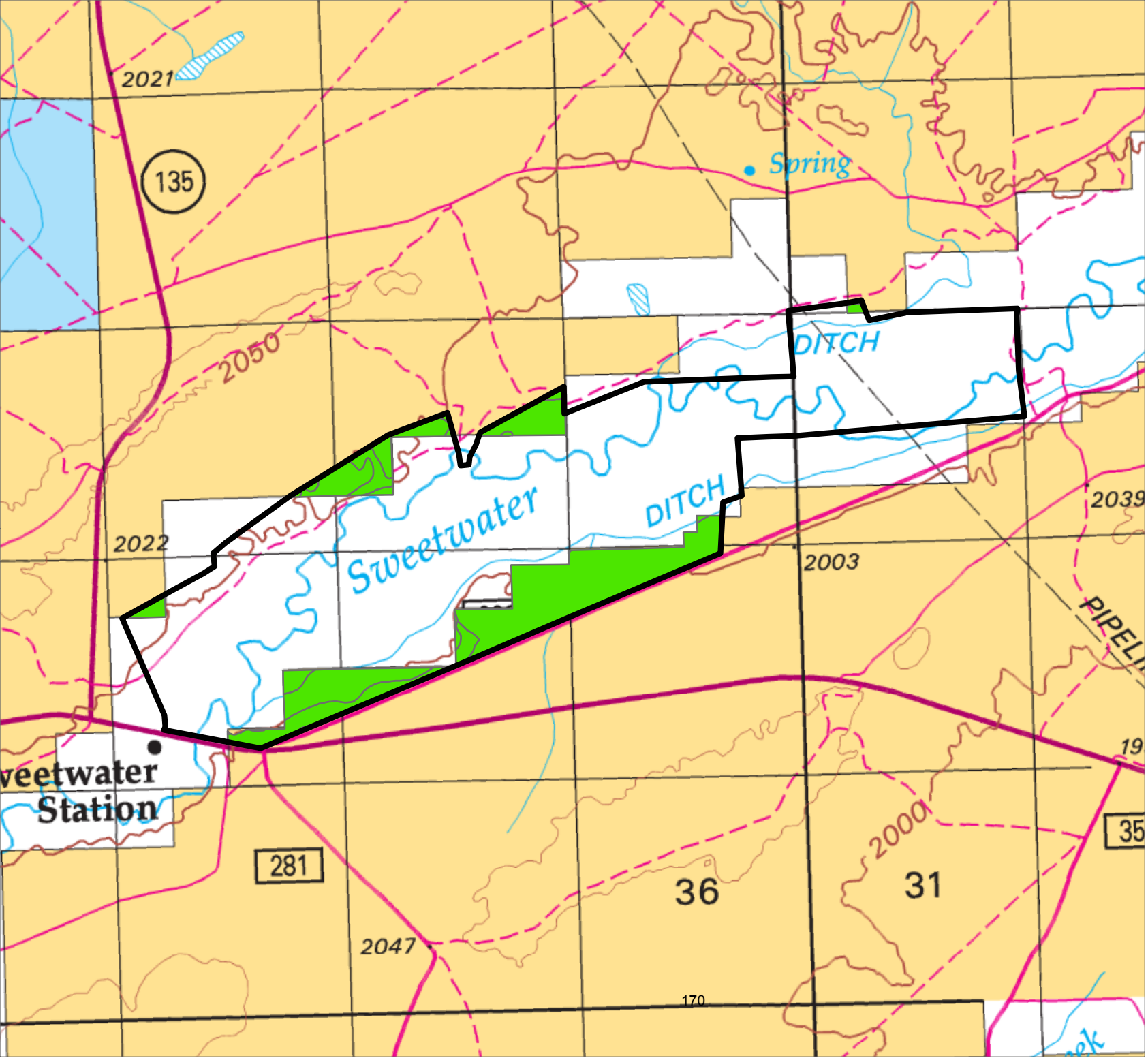
0 0.2
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Hay Meadow Pasture			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	316	-	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	316	-	-
Standard 4: Wildlife	316	-	-
Standard 5: Water Quality	316	-	-
Standard 6: Air Quality	316	-	-



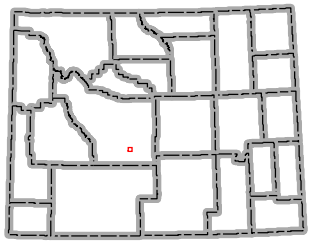
Upper Sweetwater Standards & Guidelines

Hay Meadow Pasture Soil

Allotment Boundary
Met 316 Acres
Not Met 0 Acres

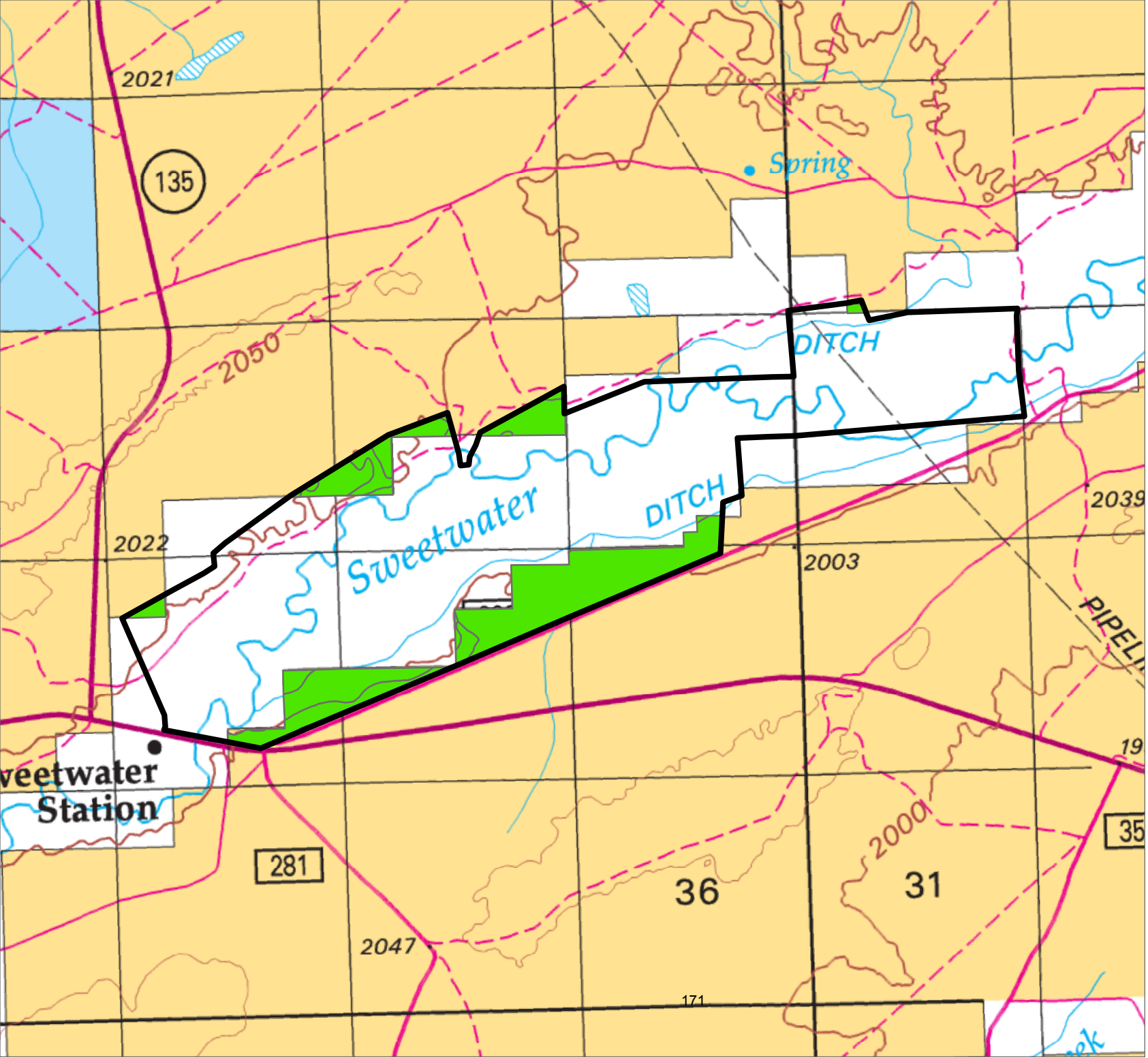
N

0 0.4
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



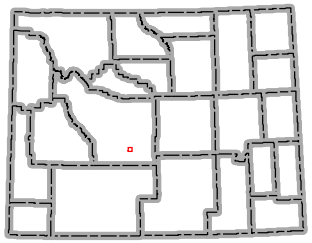
Upper Sweetwater Standards & Guidelines

Hay Meadow Pasture Upland

Allotment Boundary
Met 316 Acres
Not Met 0 Acres

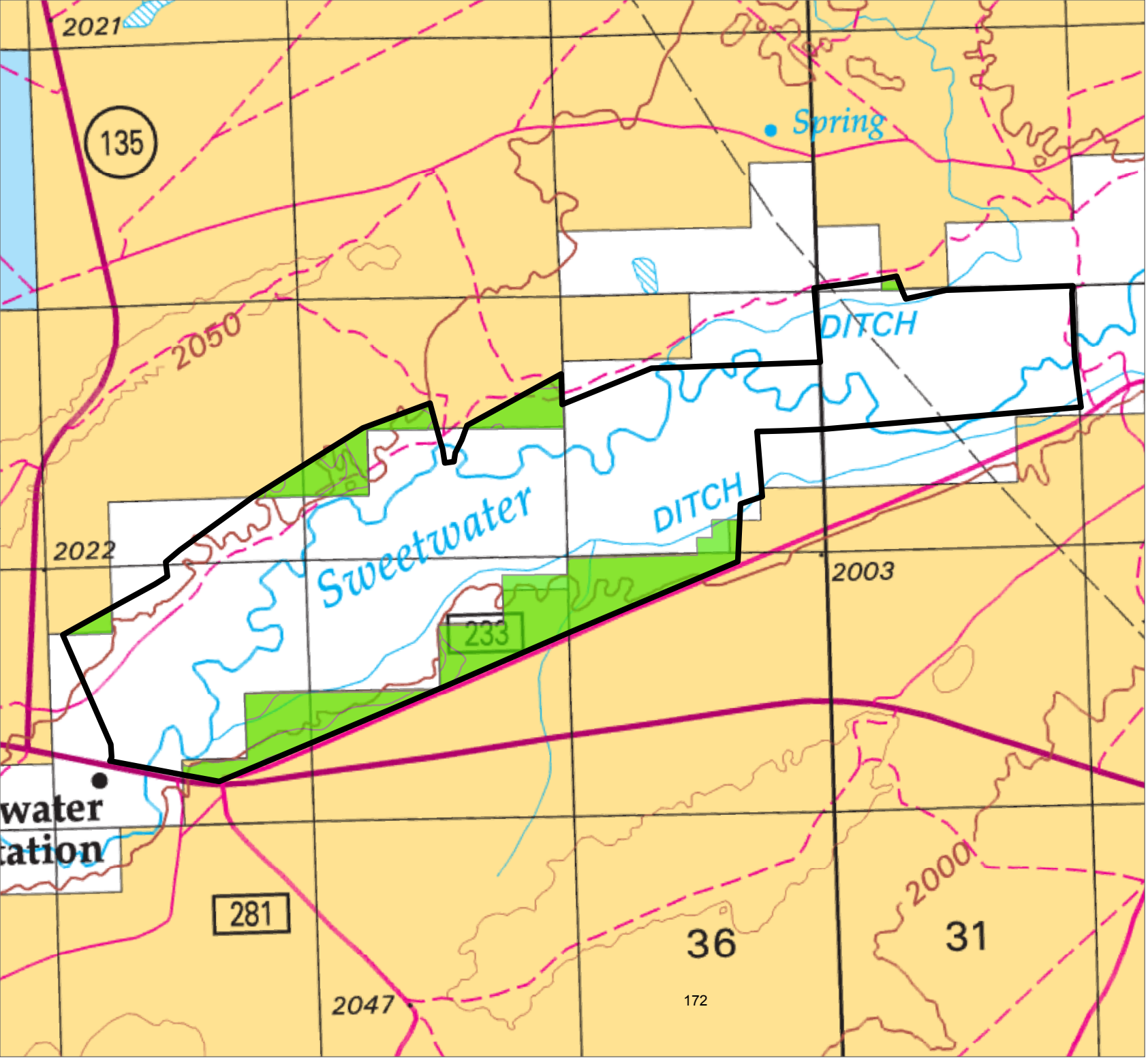
N

0 0.4
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



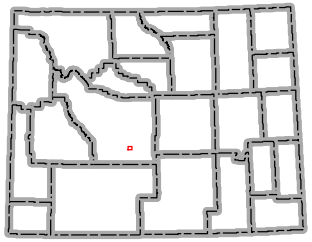
Upper Sweetwater Standards & Guidelines

Hay Meadow Wildlife

- Allotment Boundary
- Met 316 Acres
- Not Met 0 Acres
- Unknown 0 Acres

N

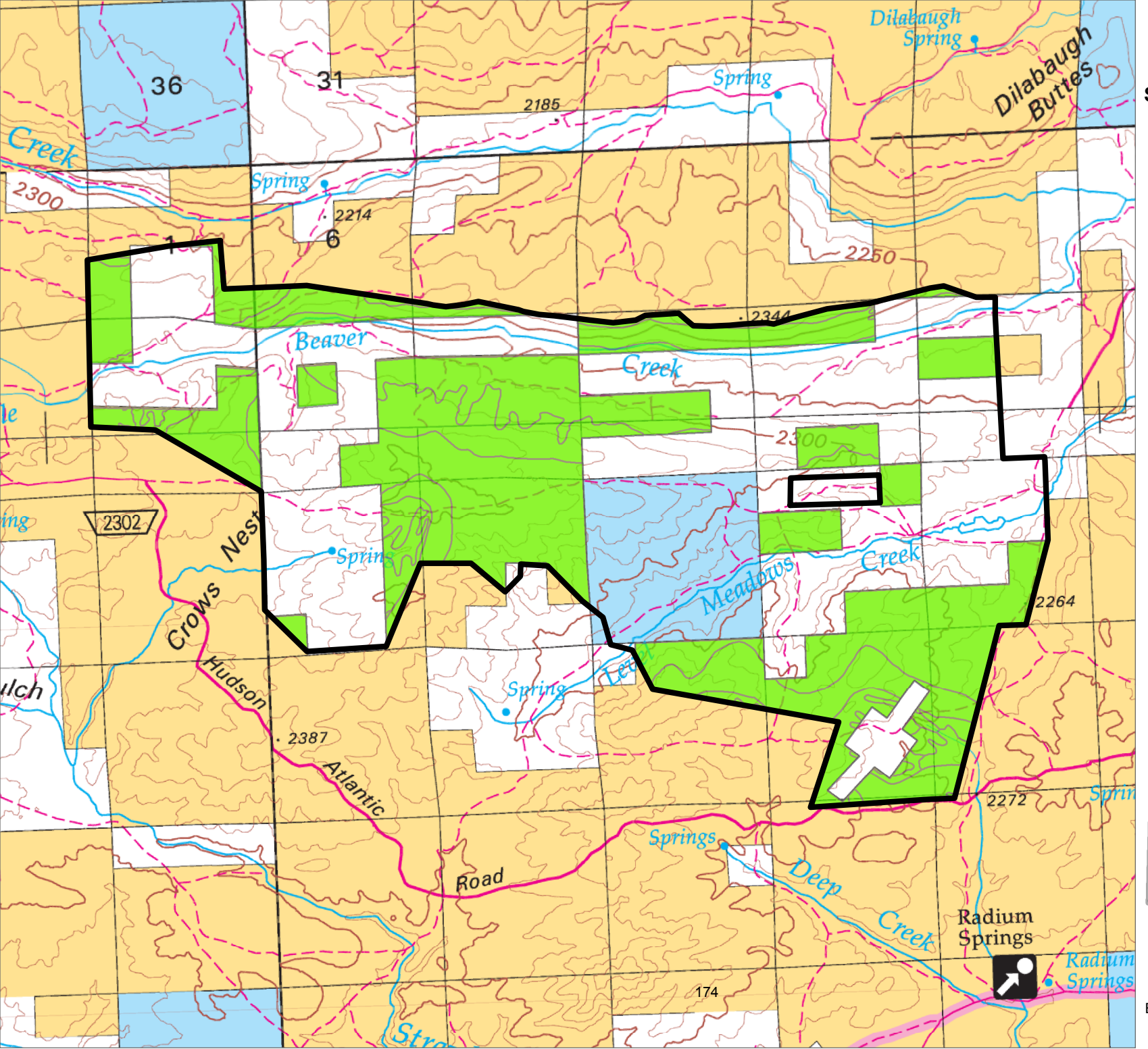
0 0.4
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Level Meadows			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	3,250	-	-
Standard 2: Riparian	39	-	-
Standard 3: Upland	1,806	330	1,113
Standard 4: Wildlife	1,806	330	1,113
Standard 5: Water Quality	3,250	-	-
Standard 6: Air Quality	3,250	-	-



Upper Sweetwater Standards & Guidelines

Level Meadows Soils

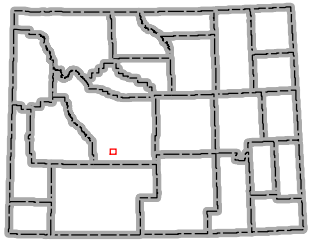
Allotment Boundary

Met 3250 Acres

Not Met 0 Acres

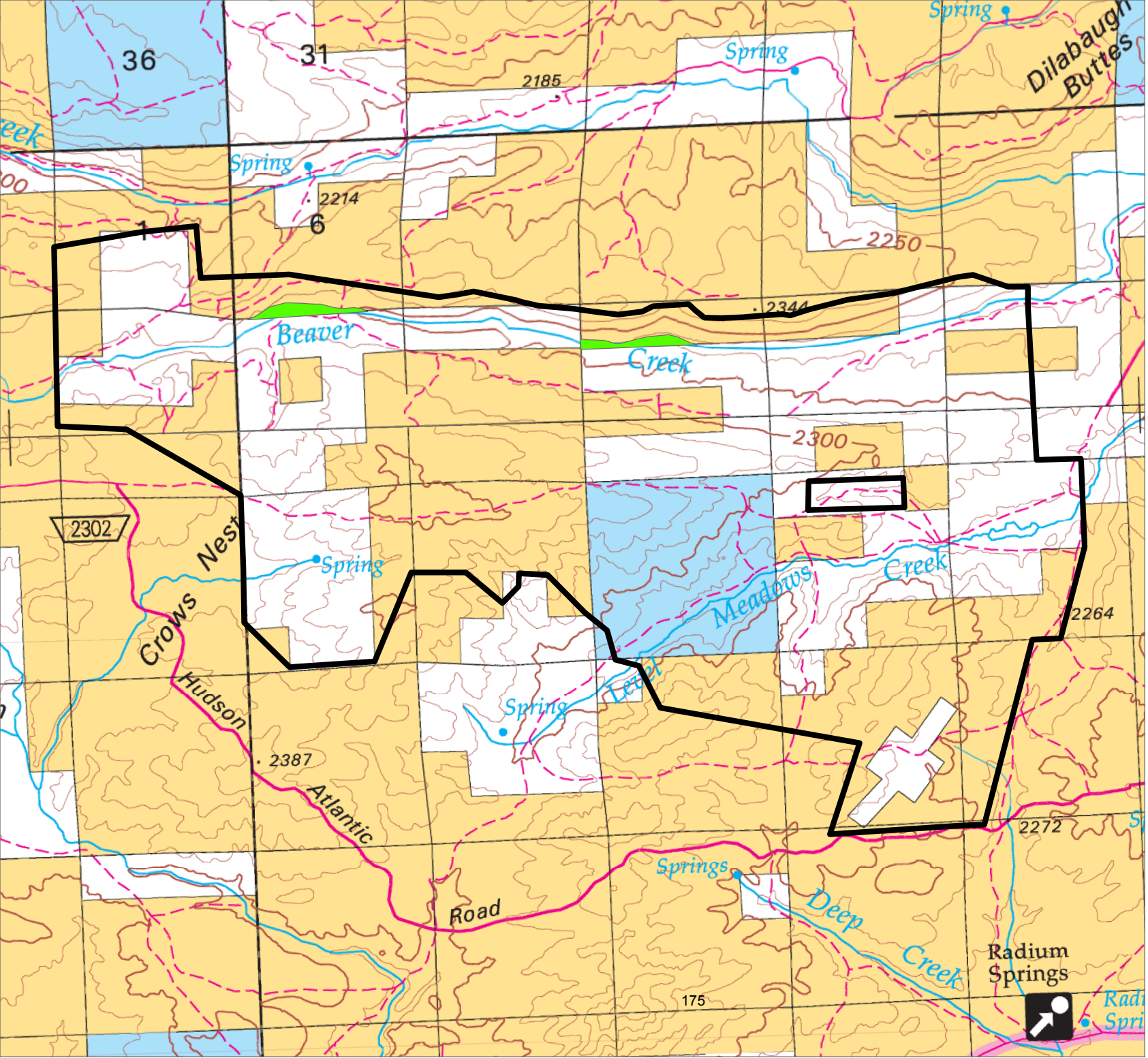
N

0 0.6 Miles



Date: 3/24/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Level Meadows Riparian

Allotment Boundary

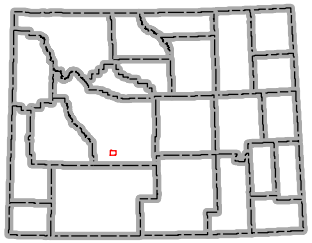
Met 39 Acres

Not Met 0 Acres

N

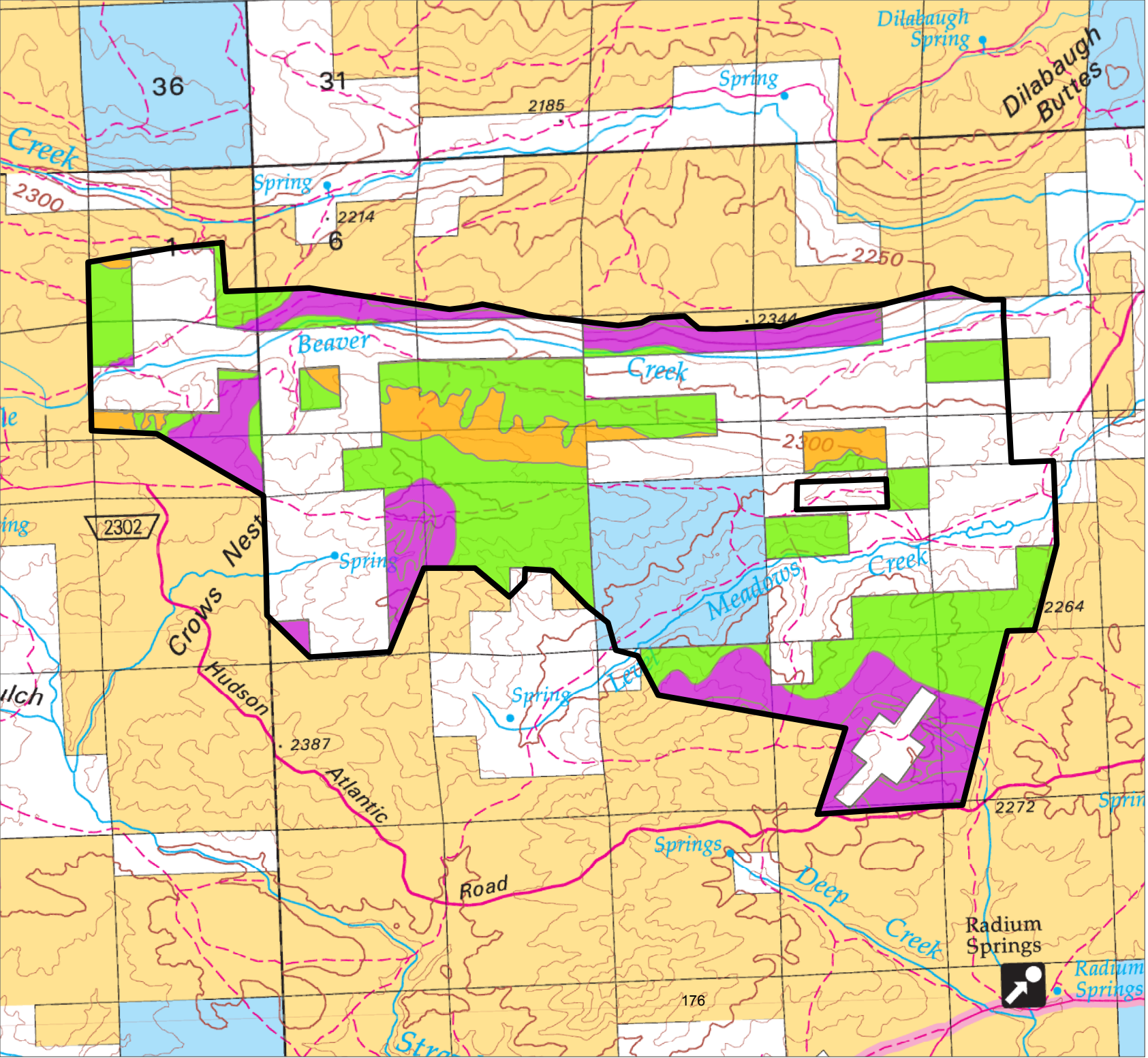
0 0.6

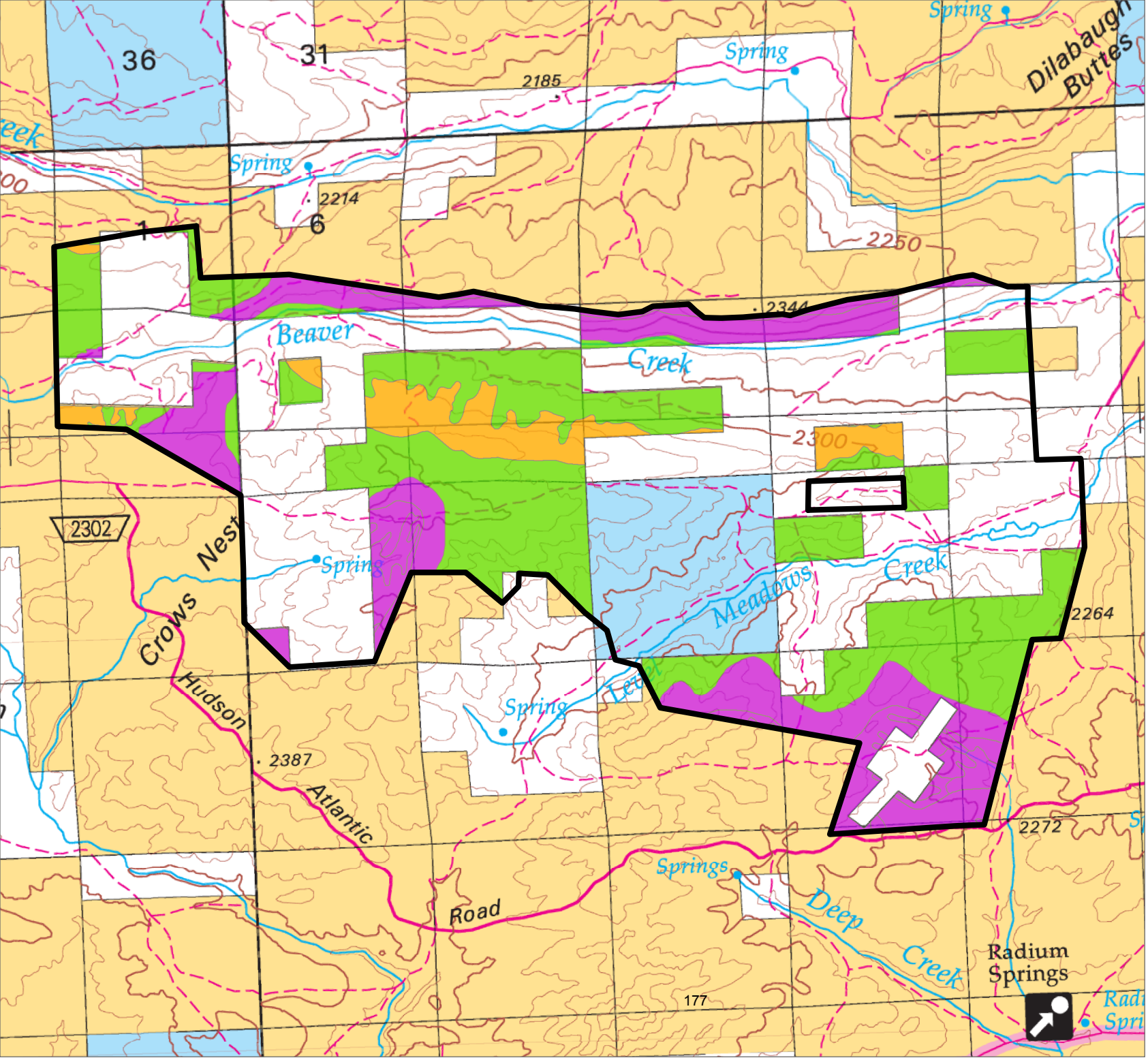
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.


Upper Sweetwater
Standards & Guidelines
Level Meadows
Upland
Allotment Boundary
Met 1806 Acres
Not Met 330 Acres
Unknown 1113 Acres
N
0
0.6
Miles
Date: 3/24/2015
No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.
36
31
1
6
Dilabaugh Spring
Dilabaugh Buttes
Spring
2185
Creek
2300
2214
2250
2344
Beaver
Creek
2300
2302
Crows Nest
Spring
Meadows
Creek
2264
Hudson
Spring
2387
Atlantic
2272
Springs
Road
Deep
Creek
Radium Springs
Radium Springs
176



Upper Sweetwater Standards & Guidelines

Level Meadows Wildlife

- Allotment Boundary
- Met 1806 Acres
- Not Met 330 Acres
- Unknown 1113 Acres

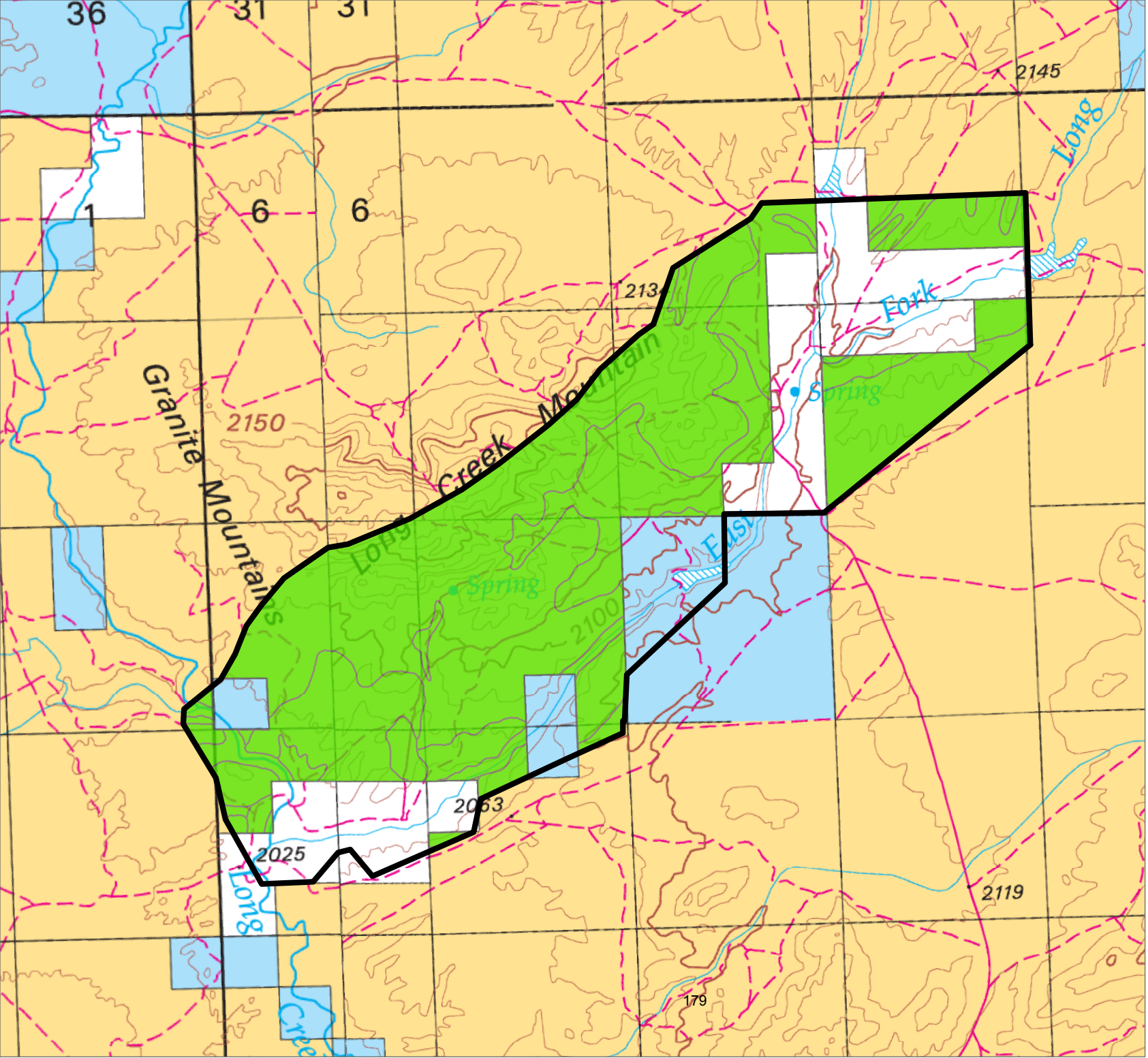
N

0 0.6 Miles

Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Long Creek Pasture			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	2,567	-	-
Standard 2: Riparian	26	5	-
Standard 3: Upland	2,567	-	-
Standard 4: Wildlife	2,562	5	-
Standard 5: Water Quality	2,567	-	-
Standard 6: Air Quality	2,567	-	-



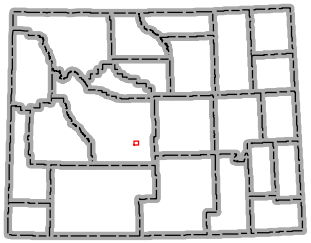
Upper Sweetwater Standards & Guidelines

Long Creek Pasture Soils

Allotment Boundary
Met 2567 Acres
Not Met 0 Acres

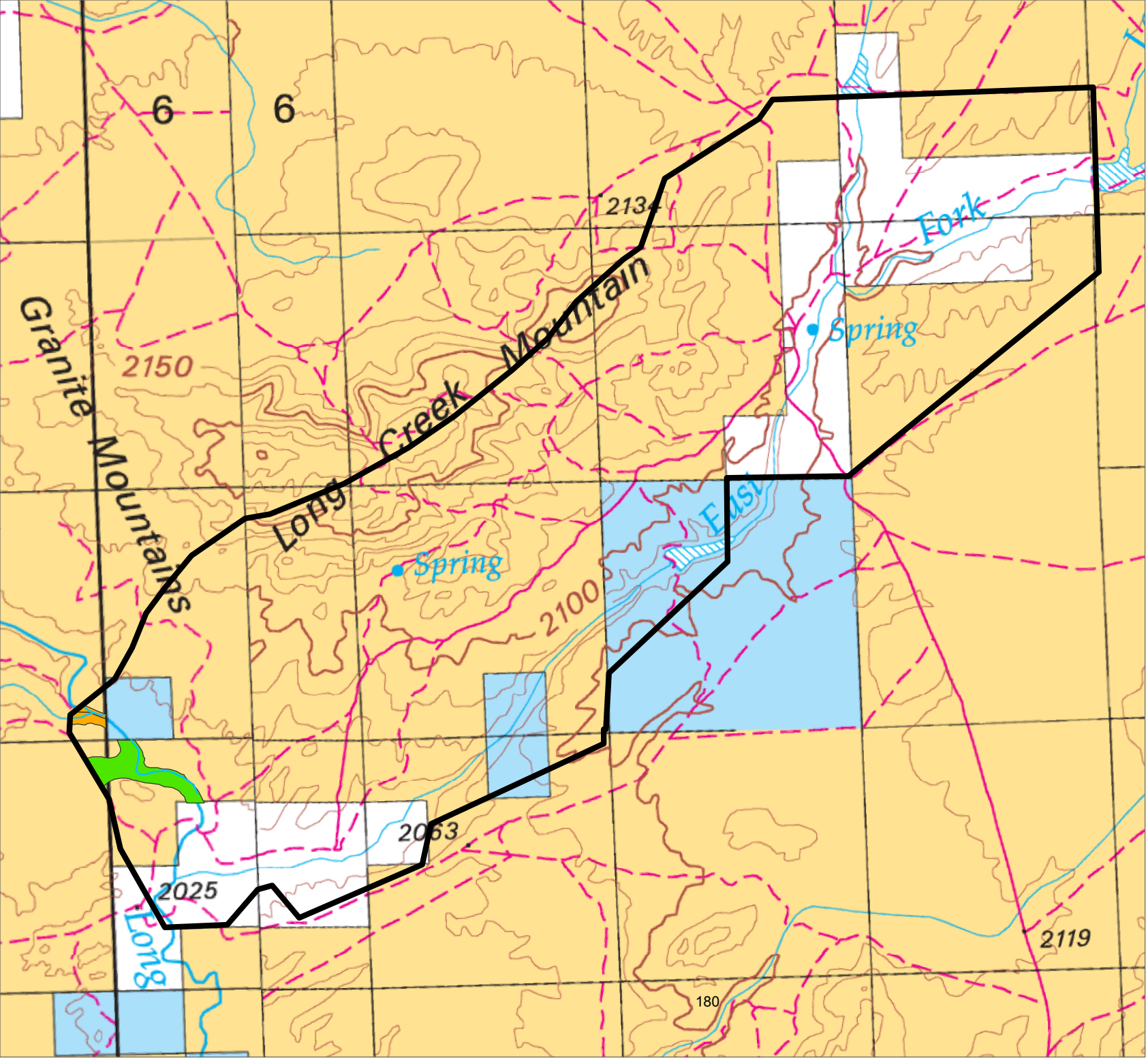
N

0 0.5
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



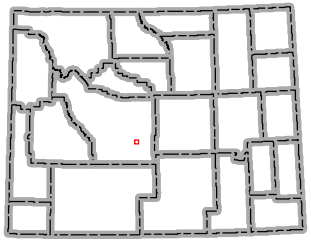
Upper Sweetwater Standards & Guidelines

Long Creek Pasture Riparian

Allotment Boundary
Met 26 Acres
Not Met 5 Acres

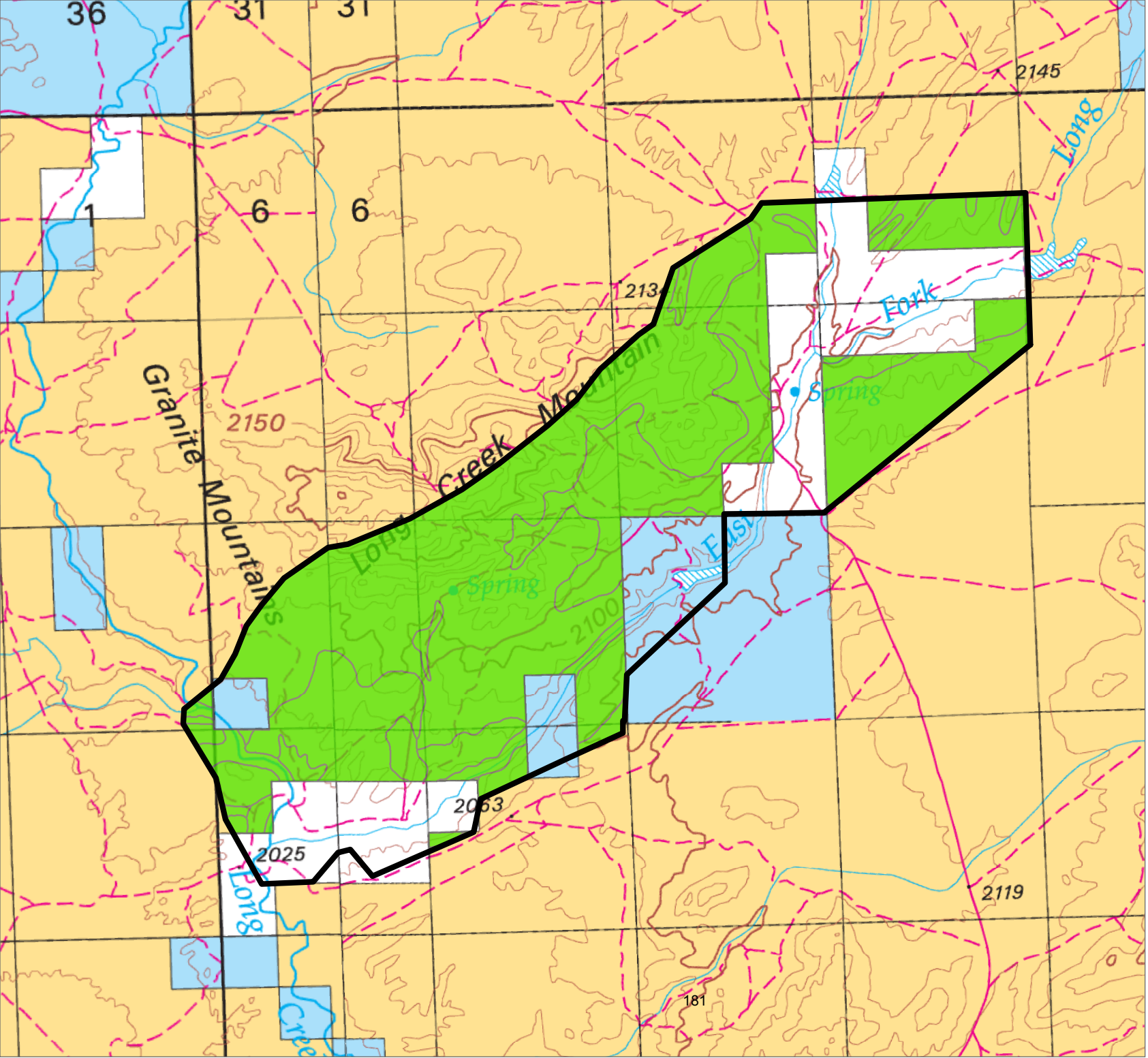
N

0 0.4
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



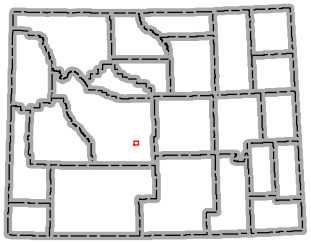
Upper Sweetwater Standards & Guidelines

Long Creek Pasture Upland

Allotment Boundary
Met 2567 Acres
Not Met 0 Acres

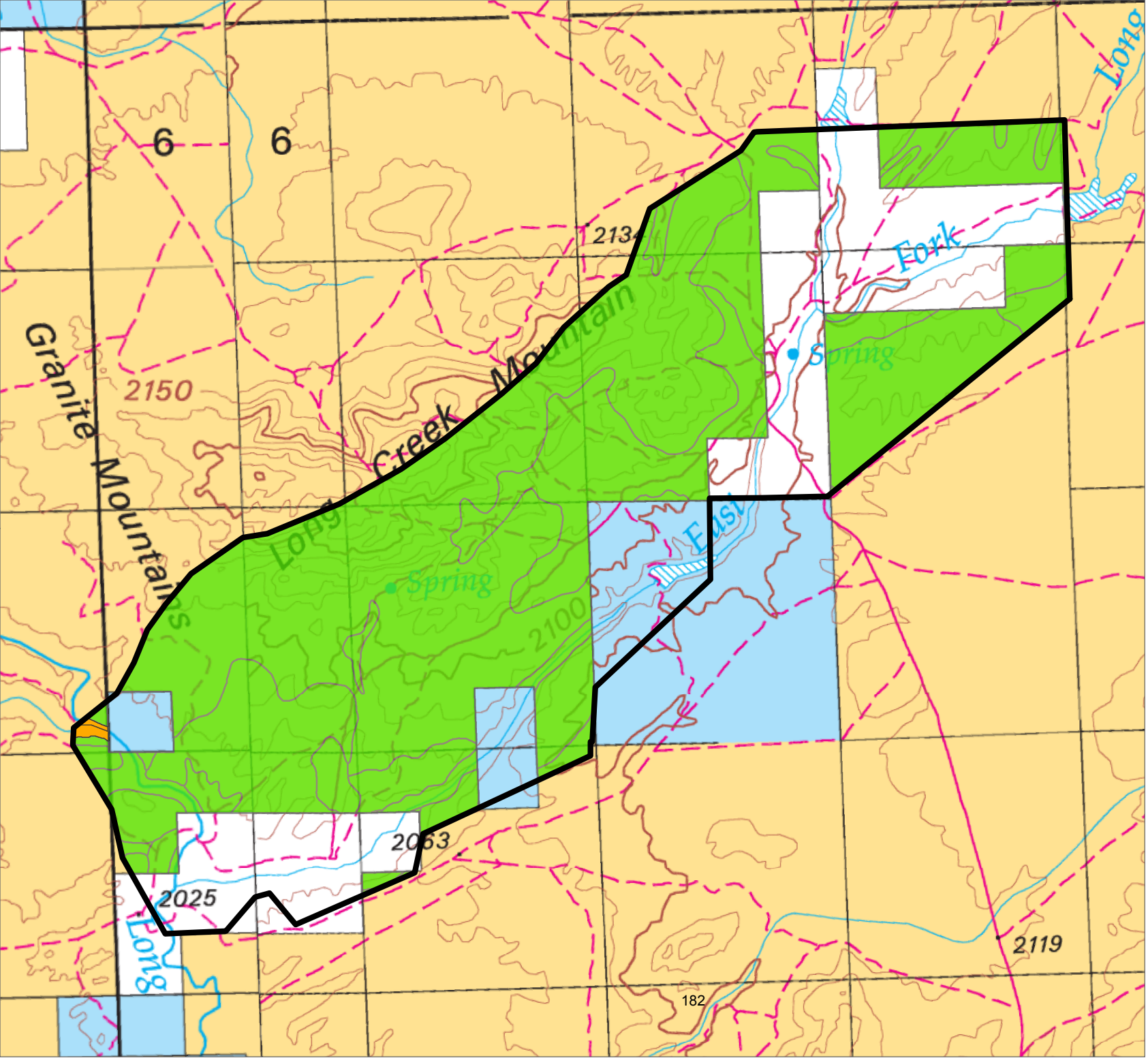
N

0 0.5
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



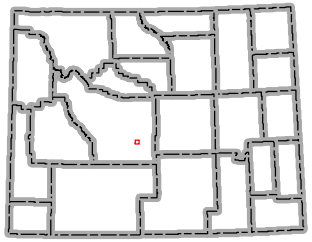
Upper Sweetwater Standards & Guidelines

Long Creek Pasture Wildlife

- Allotment Boundary
- Met 2562 Acres
- Not Met 5 Acres
- Unknown 0 Acres

N

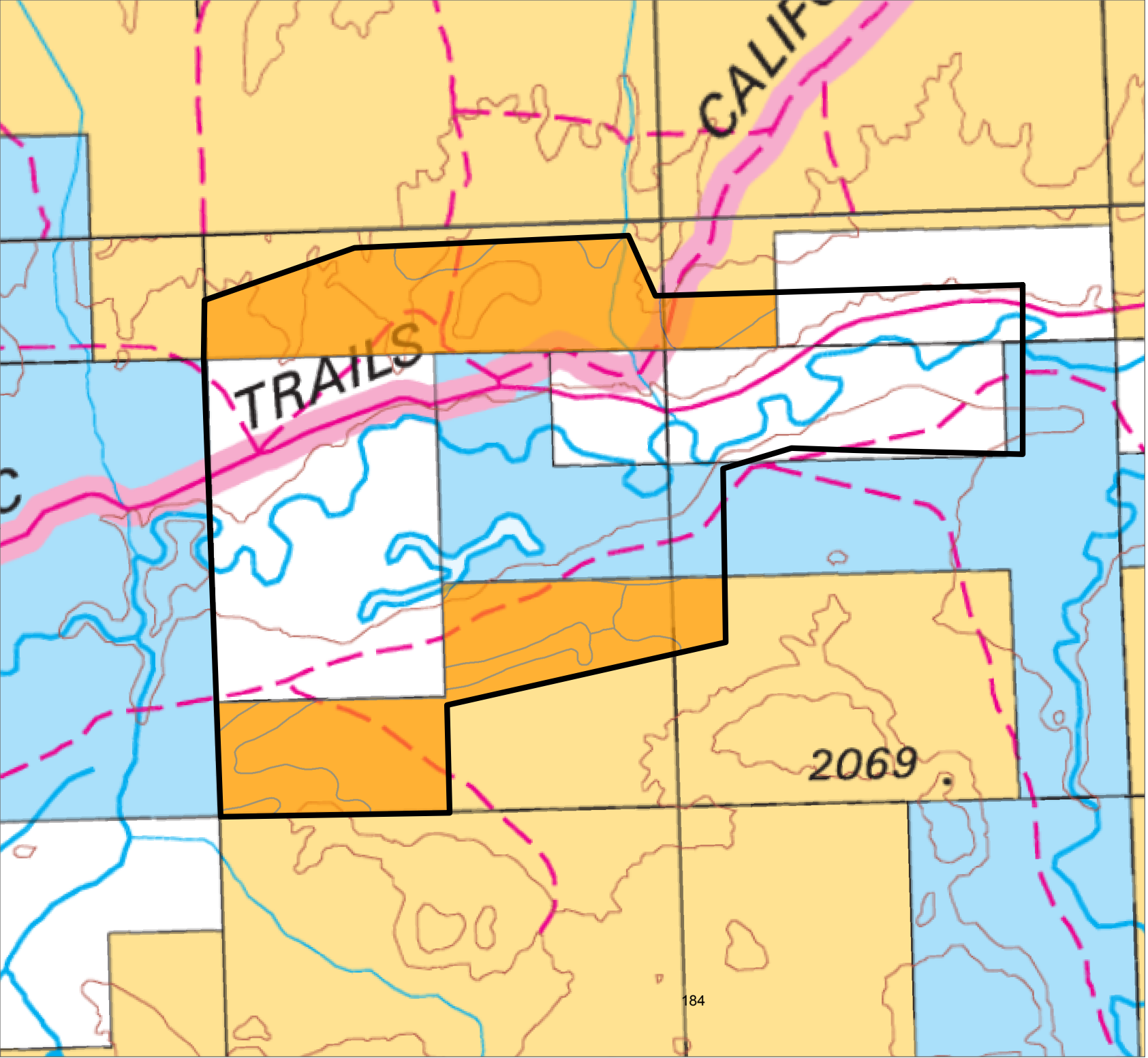
0 0.4
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Lower Ellis Ranch			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	-	321	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	-	321	-
Standard 4: Wildlife	-	321	-
Standard 5: Water Quality	321	-	-
Standard 6: Air Quality	321	-	-



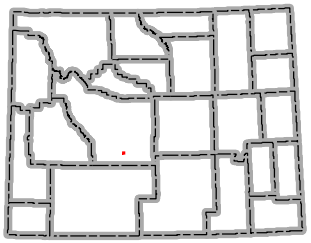
Upper Sweetwater Standards & Guidelines

Lower Ellis Ranch Soils

Allotment Boundary
Met 0 Acres
Not Met 321 Acres

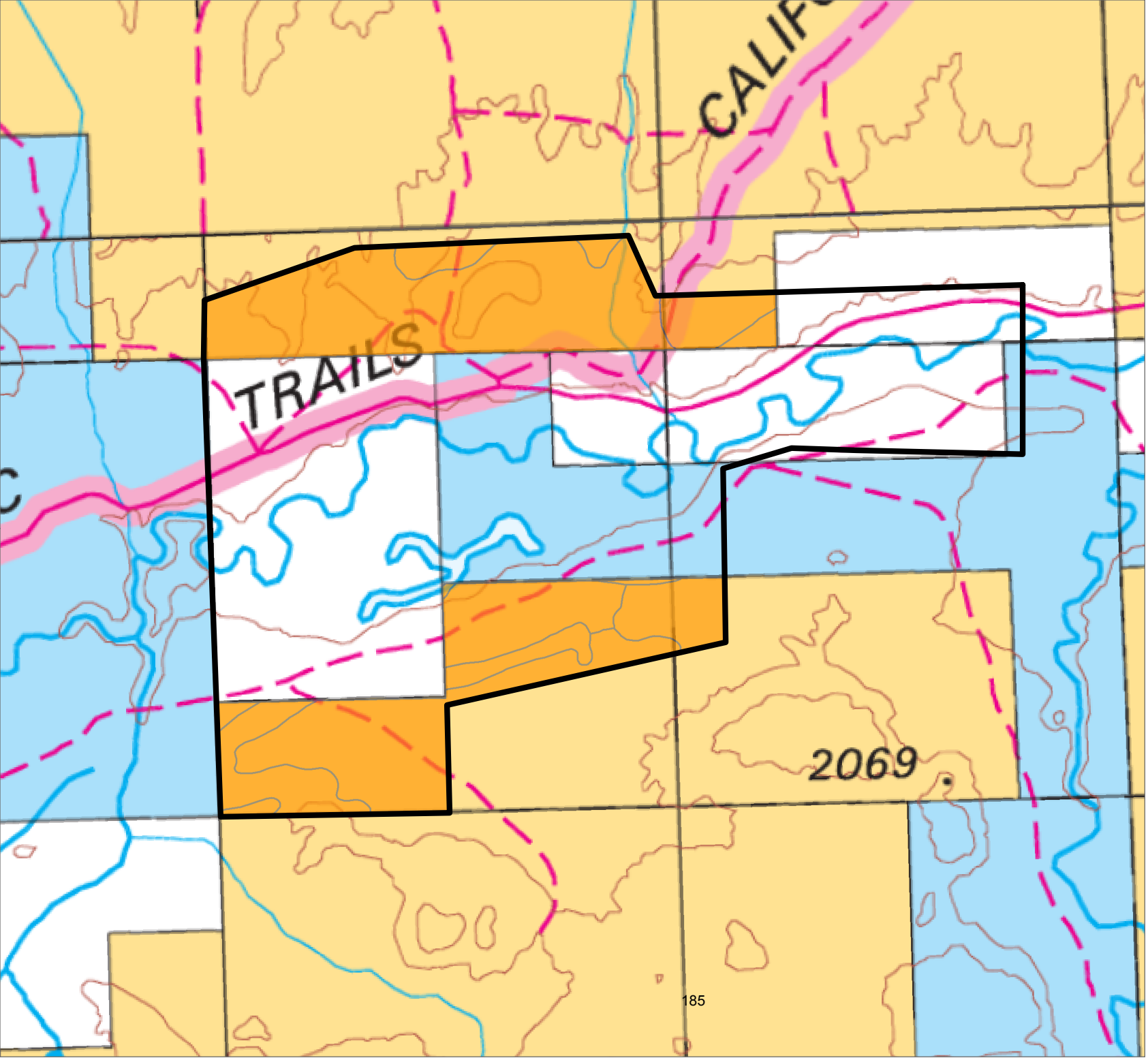
N

0 0.2
Miles



Date: 3/16/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



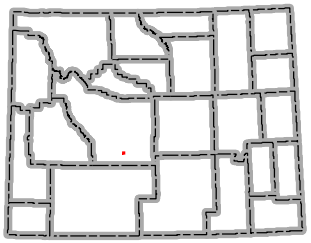
Upper Sweetwater Standards & Guidelines

Lower Ellis Ranch Upland

Allotment Boundary
Met 0 Acres
Not Met 321 Acres

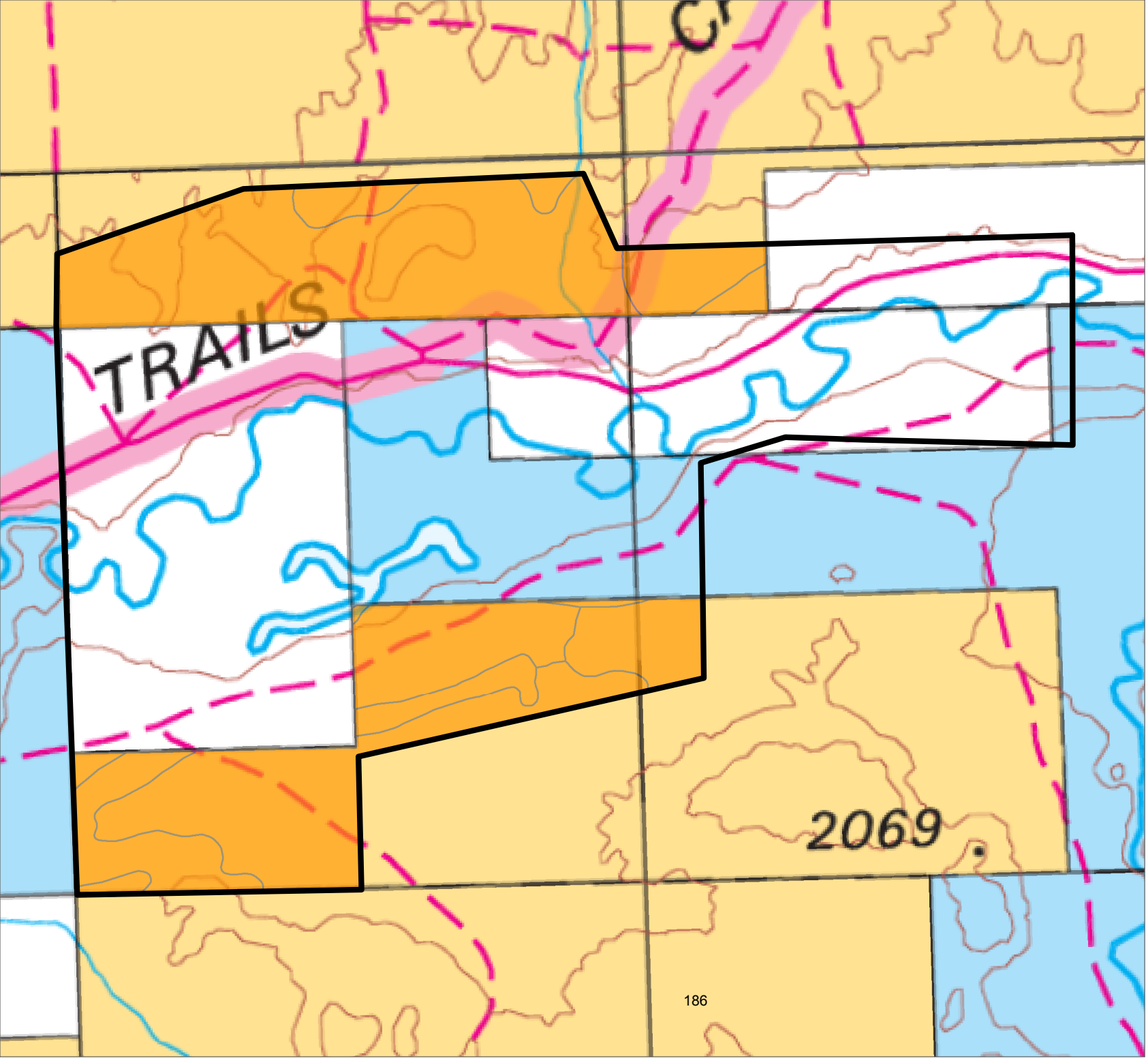
N

0 0.2
Miles



Date: 3/16/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



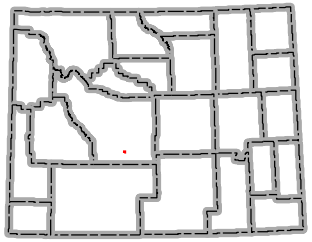
Upper Sweetwater Standards & Guidelines

Lower Ellis Ranch Wildlife

Allotment Boundary
Met 0 Acres
Not Met 321 Acres
Unknown 0 Acres

N

0 0.18
Miles



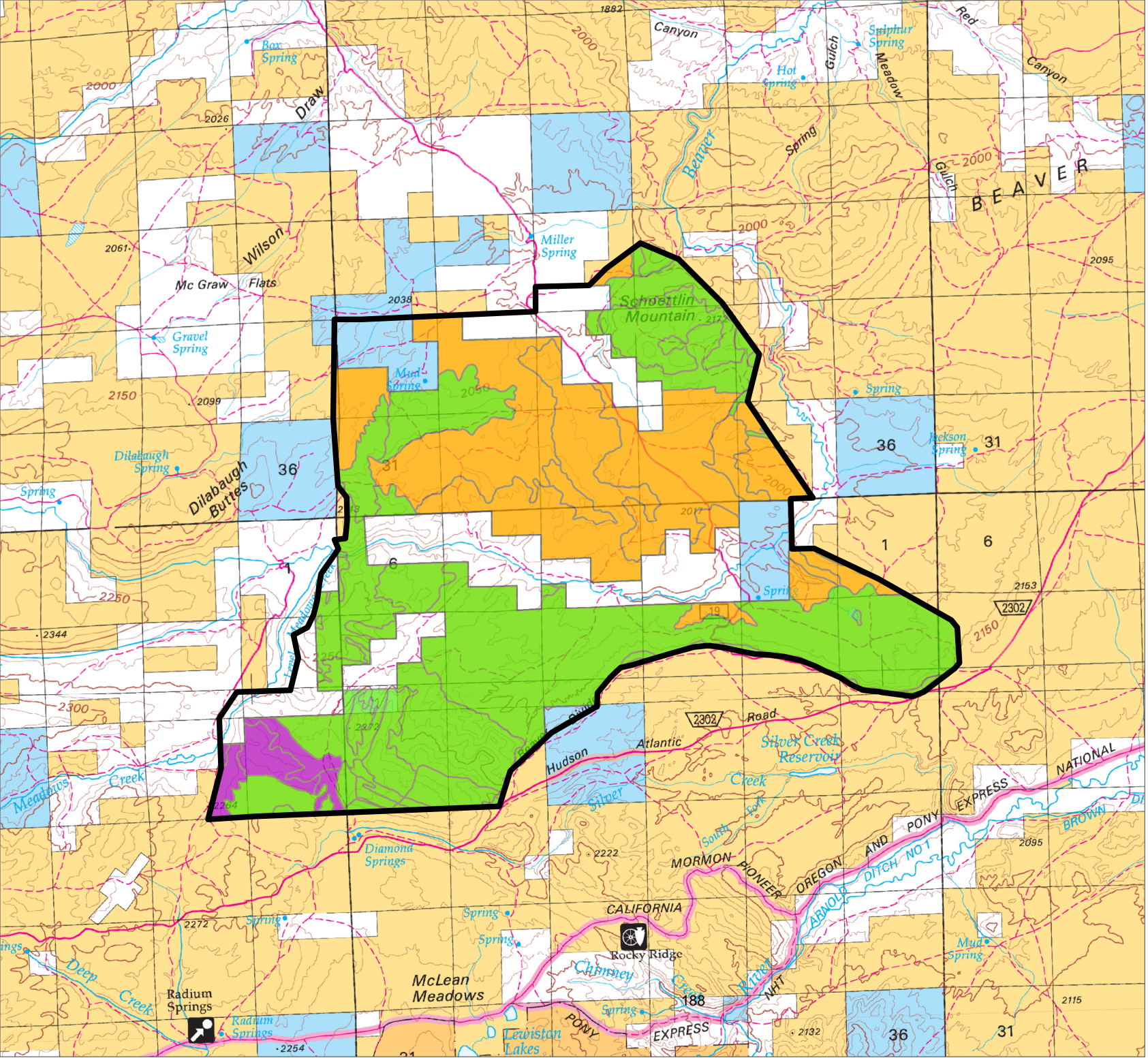
Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: McGraw Flat Common			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	6,881	4,324	427
Standard 2: Riparian	8	-	-
Standard 3: Upland	6,881	4,324	427
Standard 4: Wildlife	6,881	4,324	427
Standard 5: Water Quality	11,632	-	-
Standard 6: Air Quality	11,632	-	-

Upper Sweetwater Standards & Guidelines

McGraw Flat Common Soils



Allotment Boundary

Met 6881 Acres

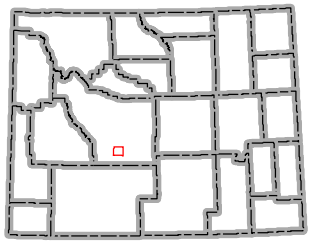
Not Met 4324 Acres

Unknown 427 Acres

N

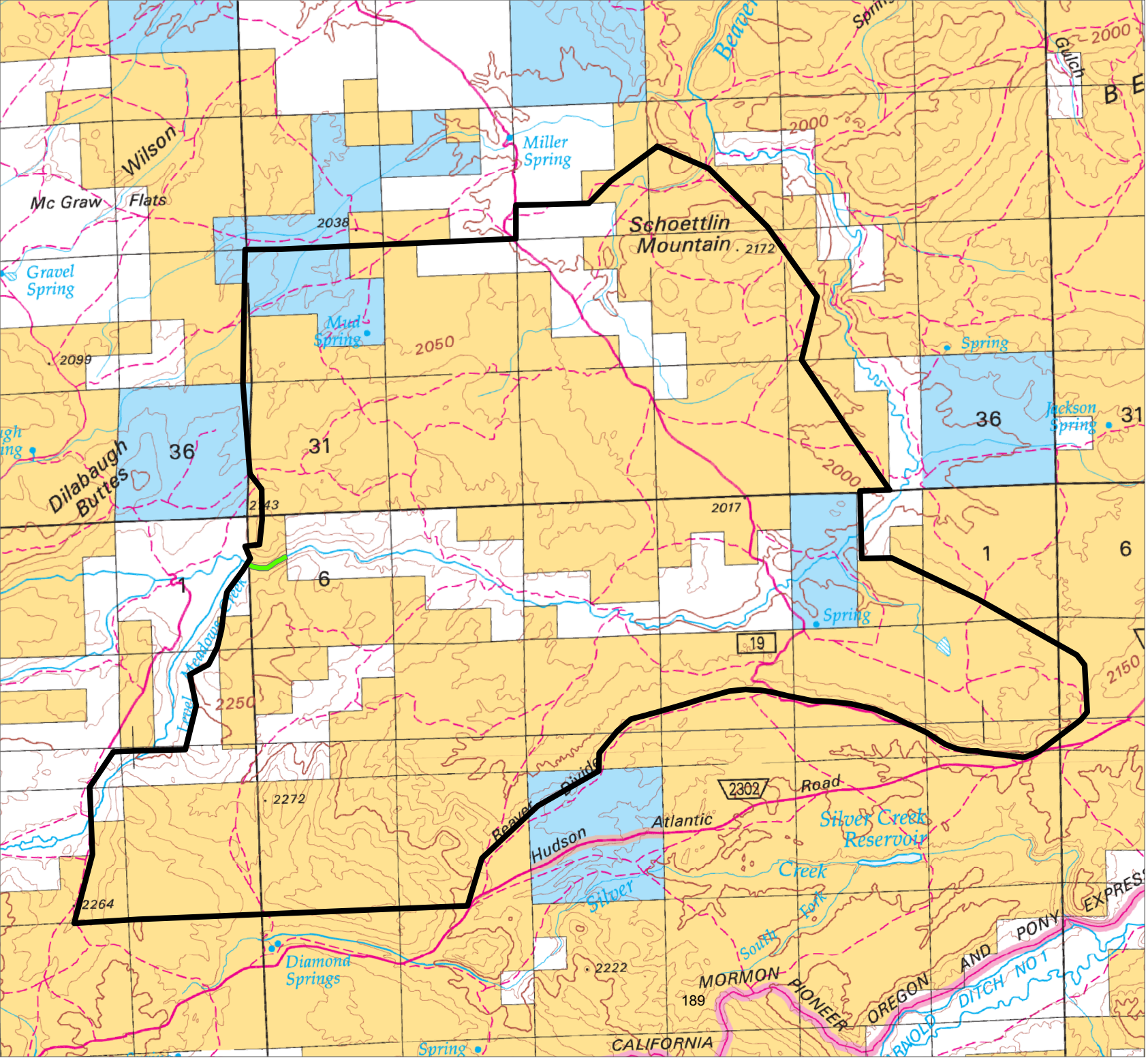
0 1

Miles



Date: 3/19/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



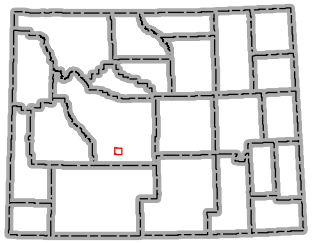
Upper Sweetwater Standards & Guidelines

McGraw Flat Common Riparian

- Allotment Boundary
- Met 8 Acres
- Not Met 0 Acres

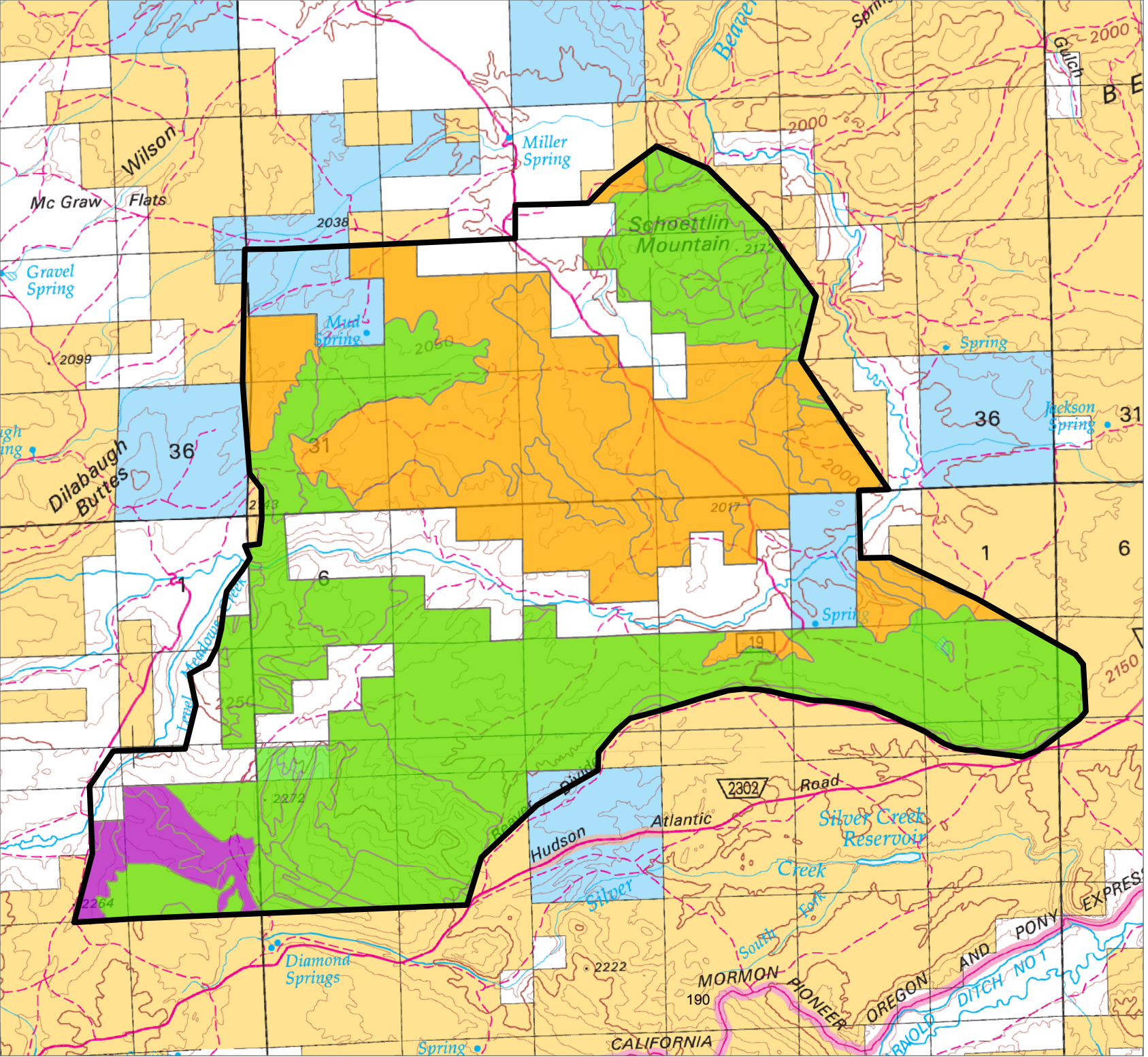
N

0 0.8
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



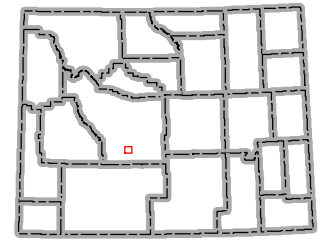
Upper Sweetwater Standards & Guidelines

McGraw Flat Common Wildlife

- Allotment Boundary
- Met 6881 Acres
- Not Met 4324 Acres
- Unknown 427 Acres

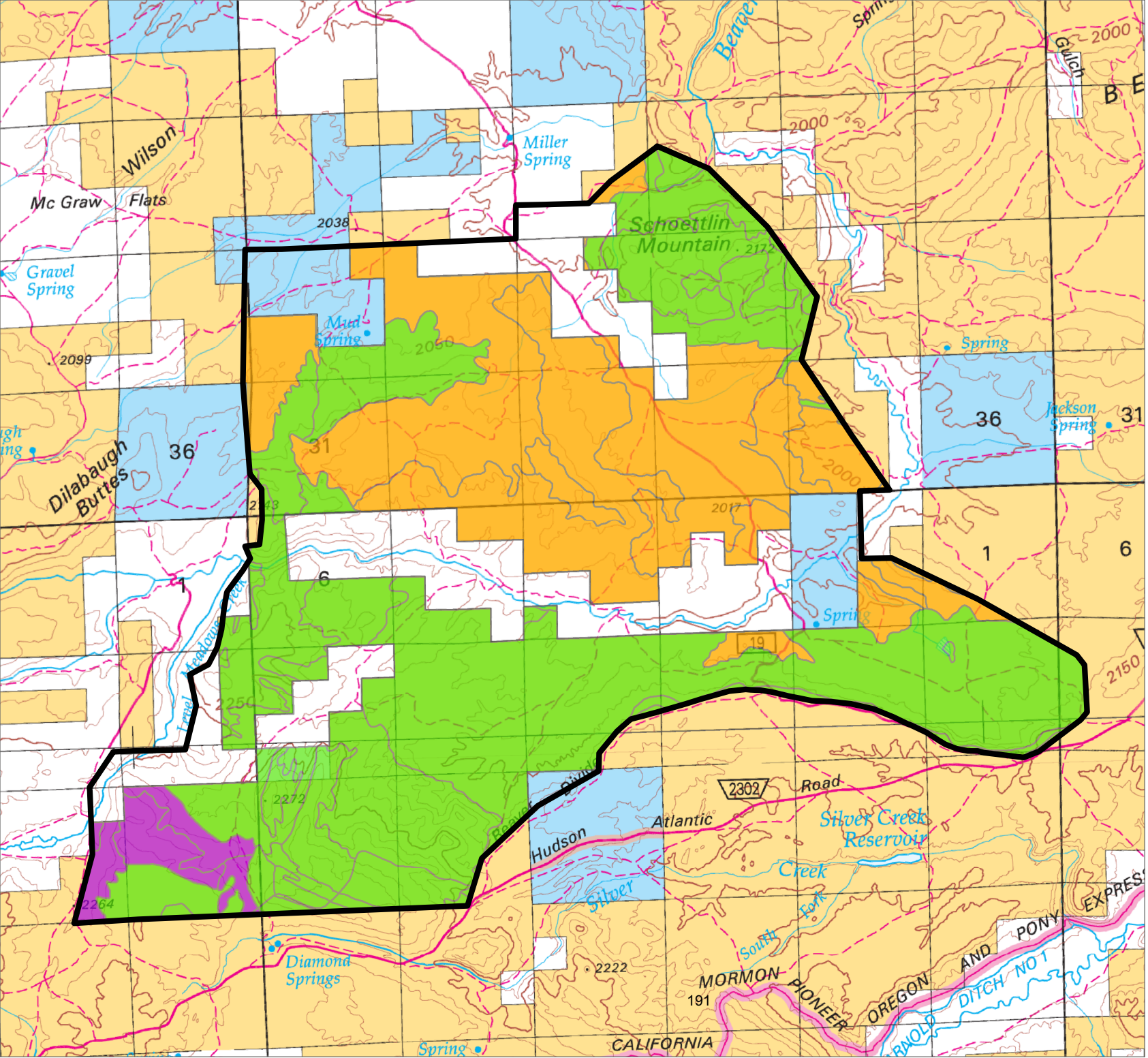
N

0 0.8
Miles



Date: 8/3/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



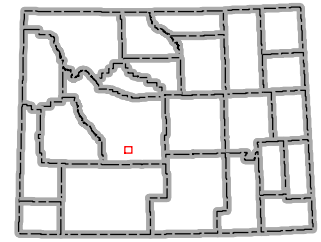
Upper Sweetwater Standards & Guidelines

McGraw Flat Common Upland

- Allotment Boundary
- Met 6881 Acres
- Not Met 4324 Acres
- Unknown 427 Acres

N

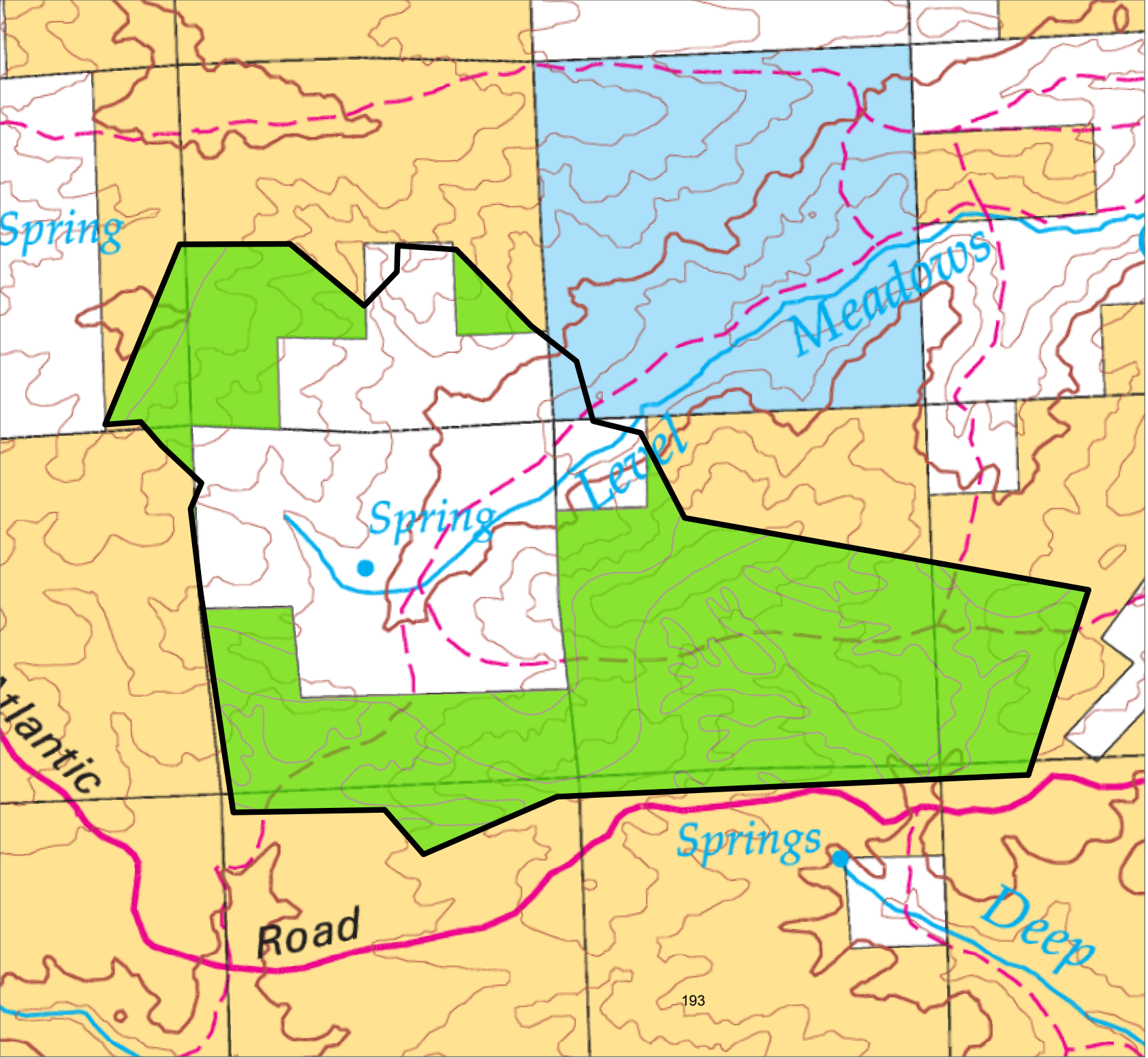
0 0.8
Miles



Date: 8/3/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: McGraw Flat Individual			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	1,034	-	-
Standard 2: Riparian	12	-	-
Standard 3: Upland	-	1,034	-
Standard 4: Wildlife	12	1,022	-
Standard 5: Water Quality	1,034	-	-
Standard 6: Air Quality	1,034	-	-



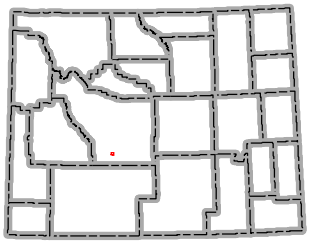
Upper Sweetwater Standards & Guidelines

McGraw Flat Individual Soils

Allotment Boundary
Met 1034 Acres
Not Met 0 Acres

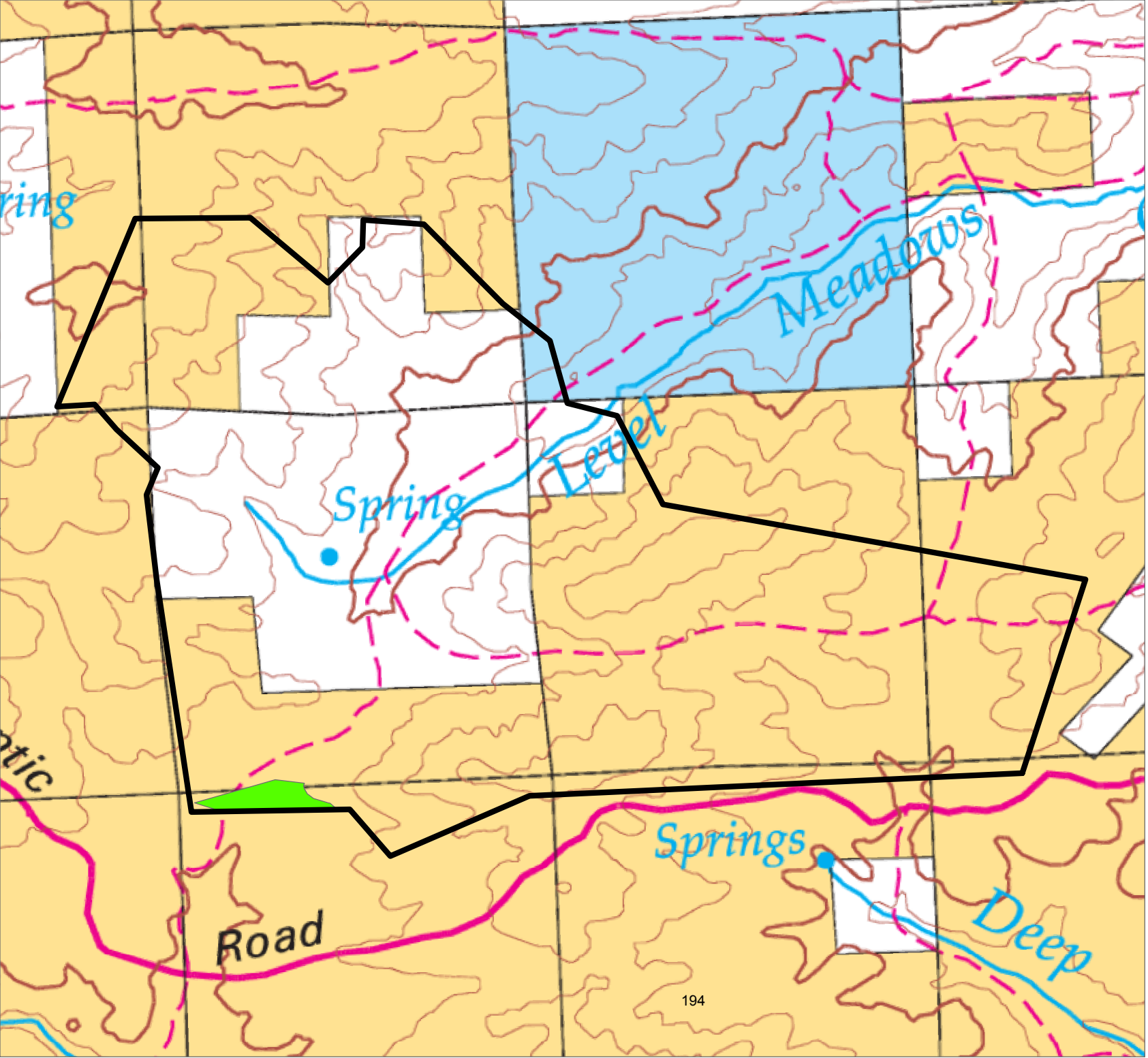
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



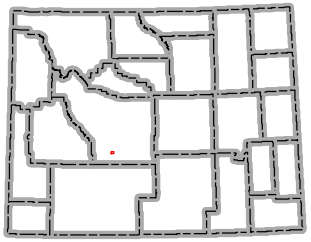
Upper Sweetwater Standards & Guidelines

McGraw Flat Individual Riparian

Allotment Boundary
Met 12 Acres
Not Met 0 Acres

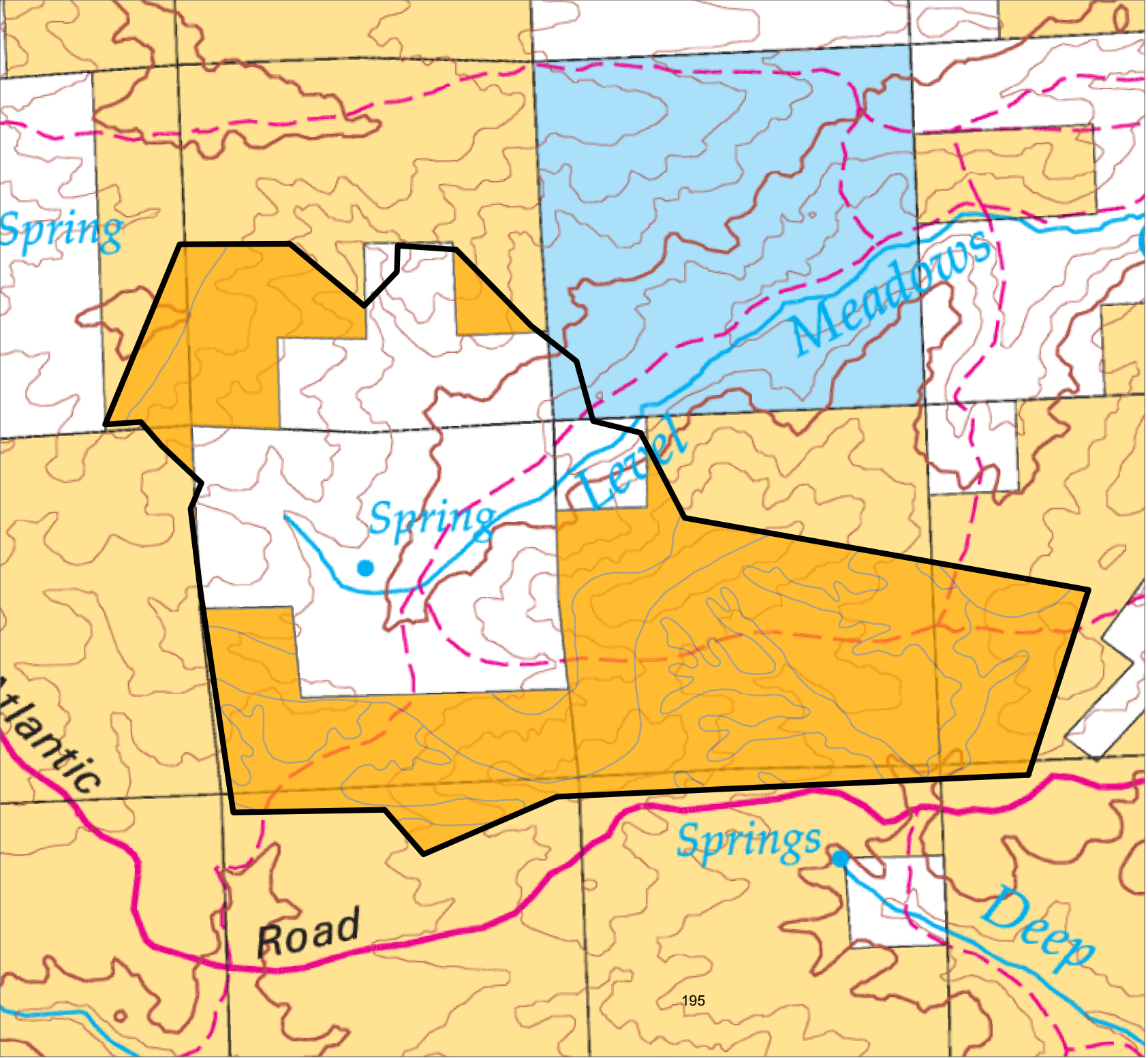
N

0 0.2
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



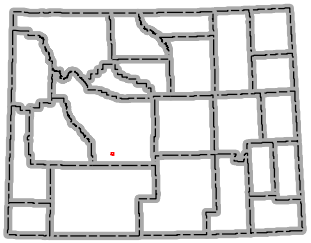
Upper Sweetwater Standards & Guidelines

McGraw Flat Individual Upland

Allotment Boundary
Met 0 Acres
Not Met 1034 Acres

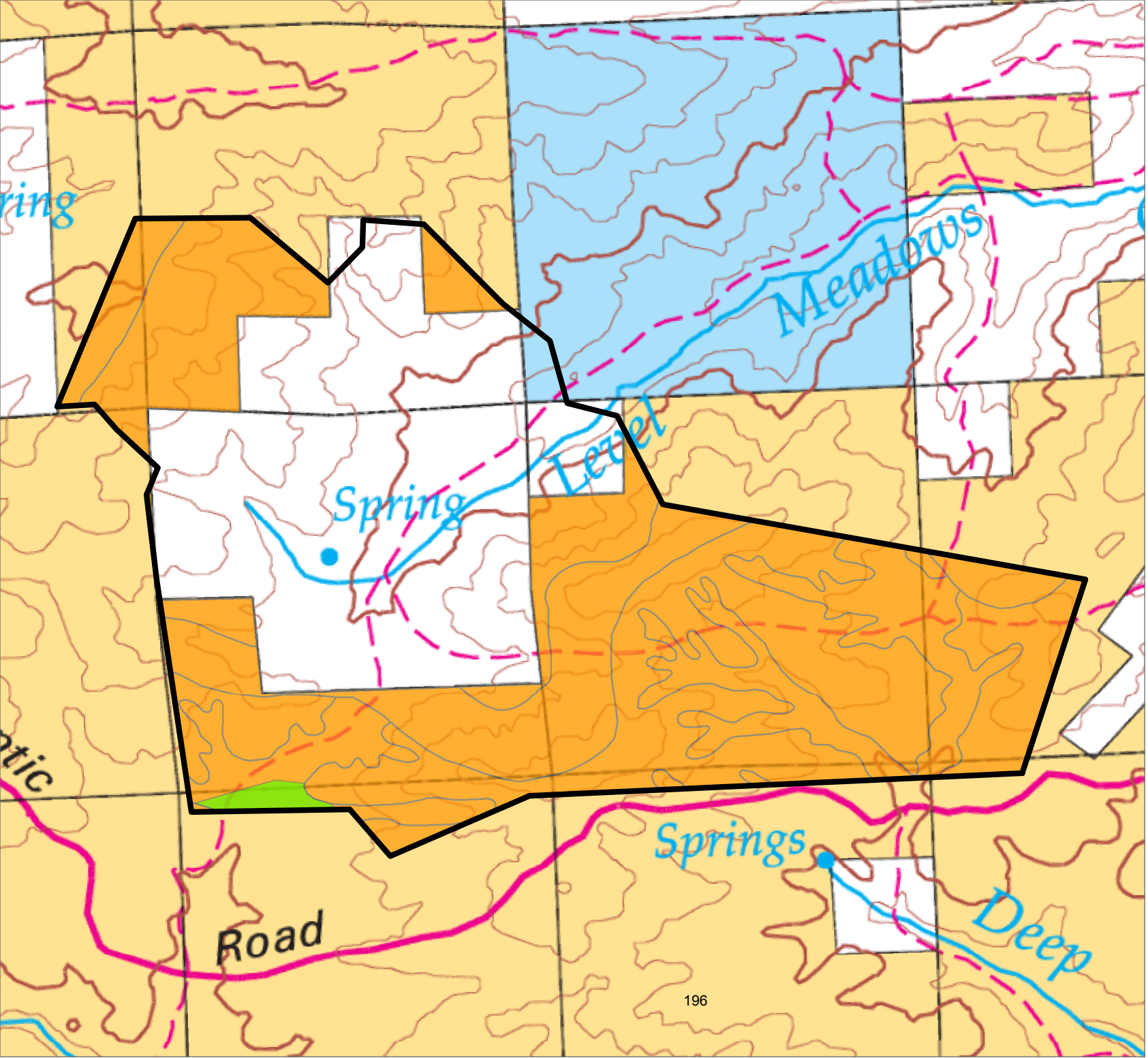
N

0 0.3
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



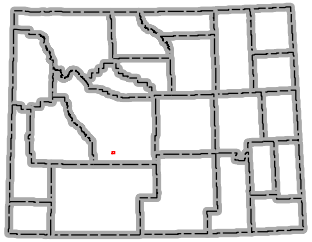
Upper Sweetwater Standards & Guidelines

McGraw Flat Individual Wildlife

Allotment Boundary
Met 12 Acres
Not Met 1022 Acres
Unknown 0 Acres

N

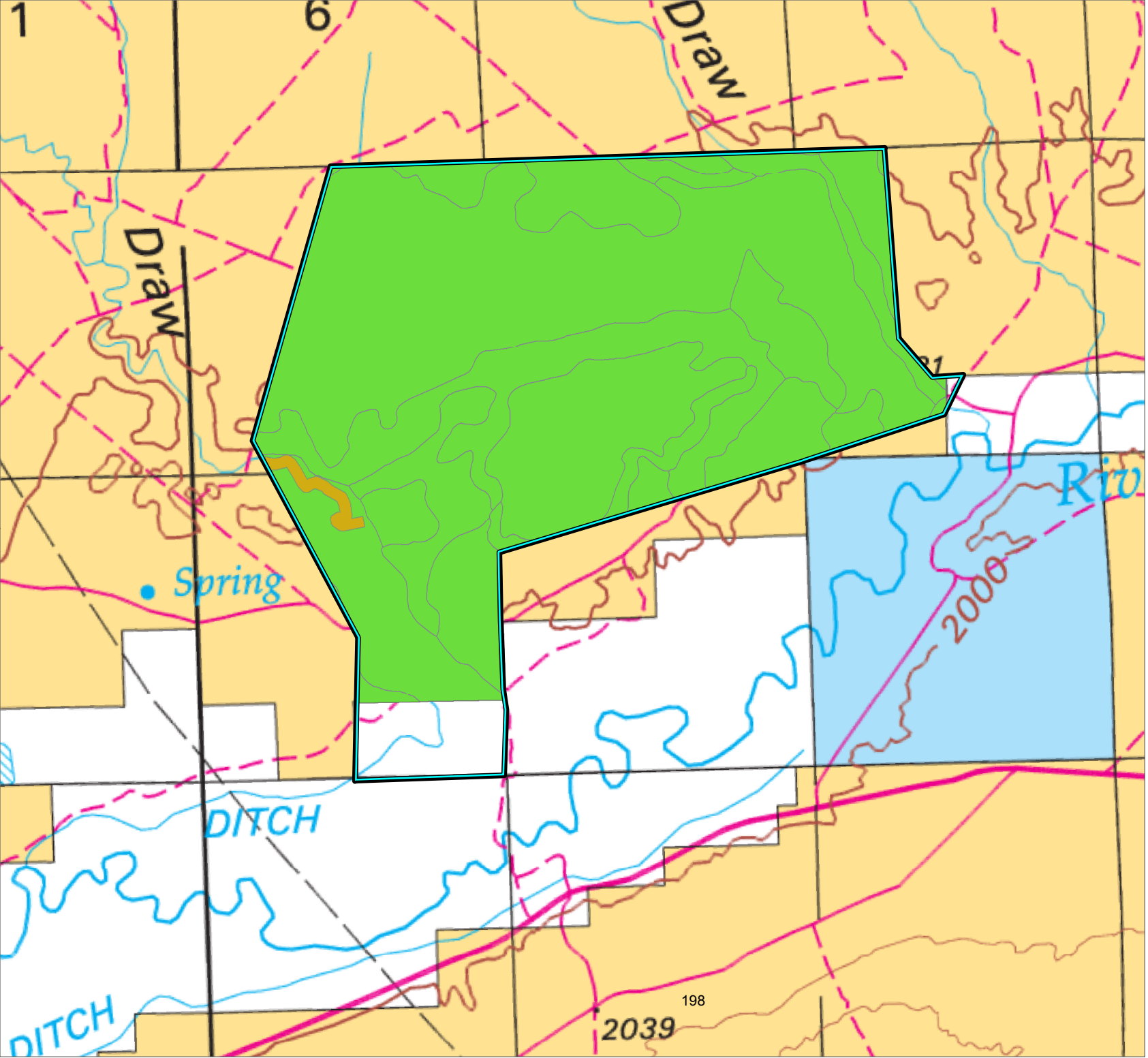
0 0.2
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Myers Fenced			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	1,628	12	-
Standard 2: Riparian	-	12	-
Standard 3: Upland	1,640	-	-
Standard 4: Wildlife	1,628	12	-
Standard 5: Water Quality	1,640	-	-
Standard 6: Air Quality	1,640	-	-



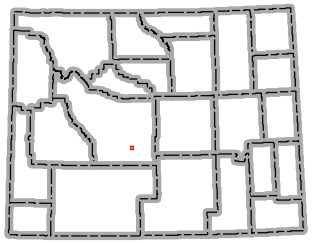
Upper Sweetwater Standards & Guidelines

Myers Fenced Soils

Allotment Boundary
Met 1628 Acres
Not Met 12 Acres

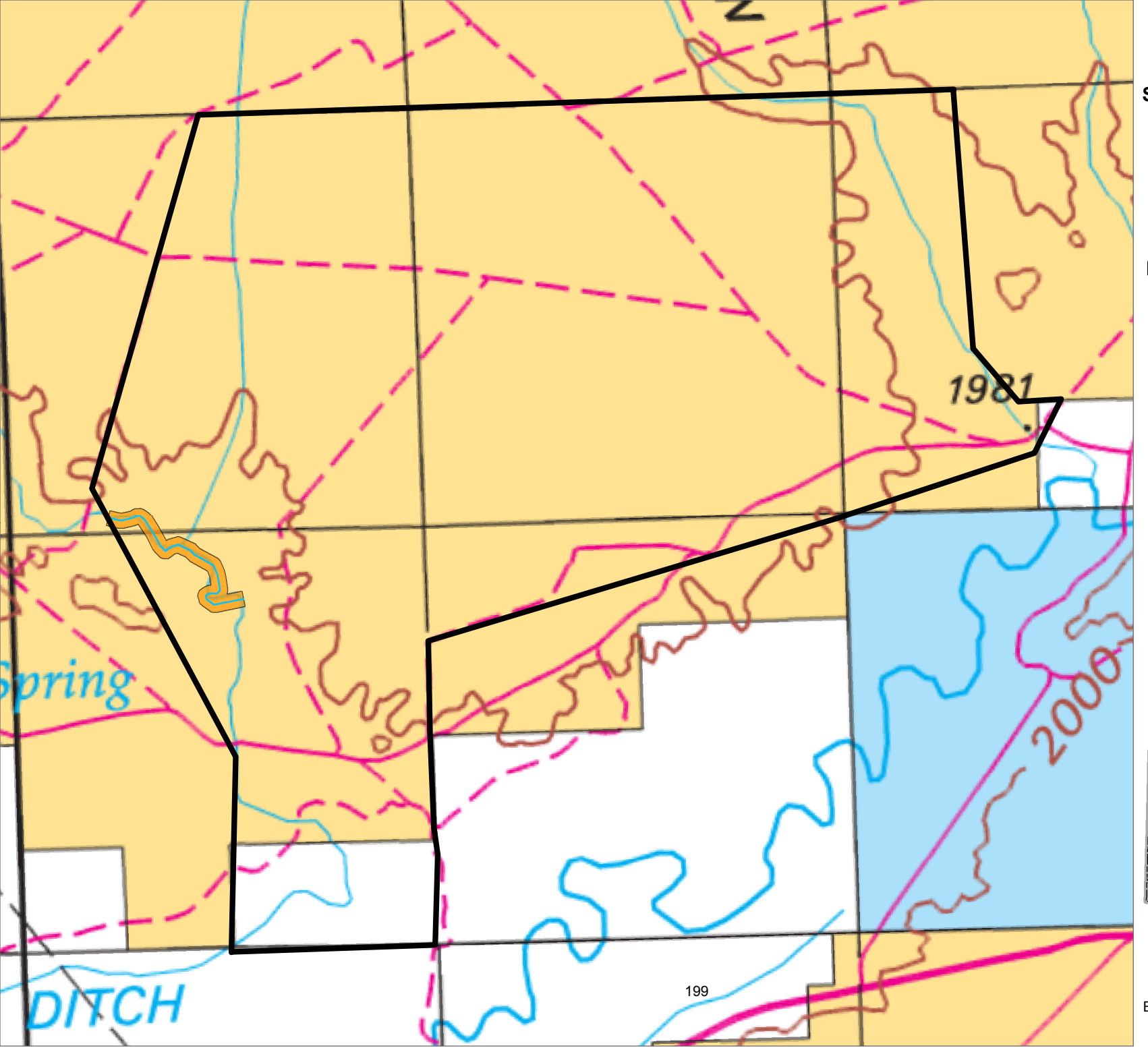
N

0 0.3
Miles



Date: 3/16/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Myers Fenced Riparian

Allotment Boundary

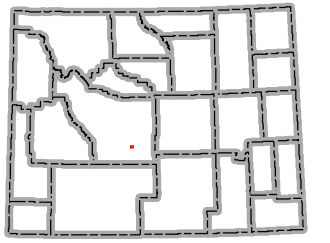
Met 0 Acres

Not Met 12 Acres

N

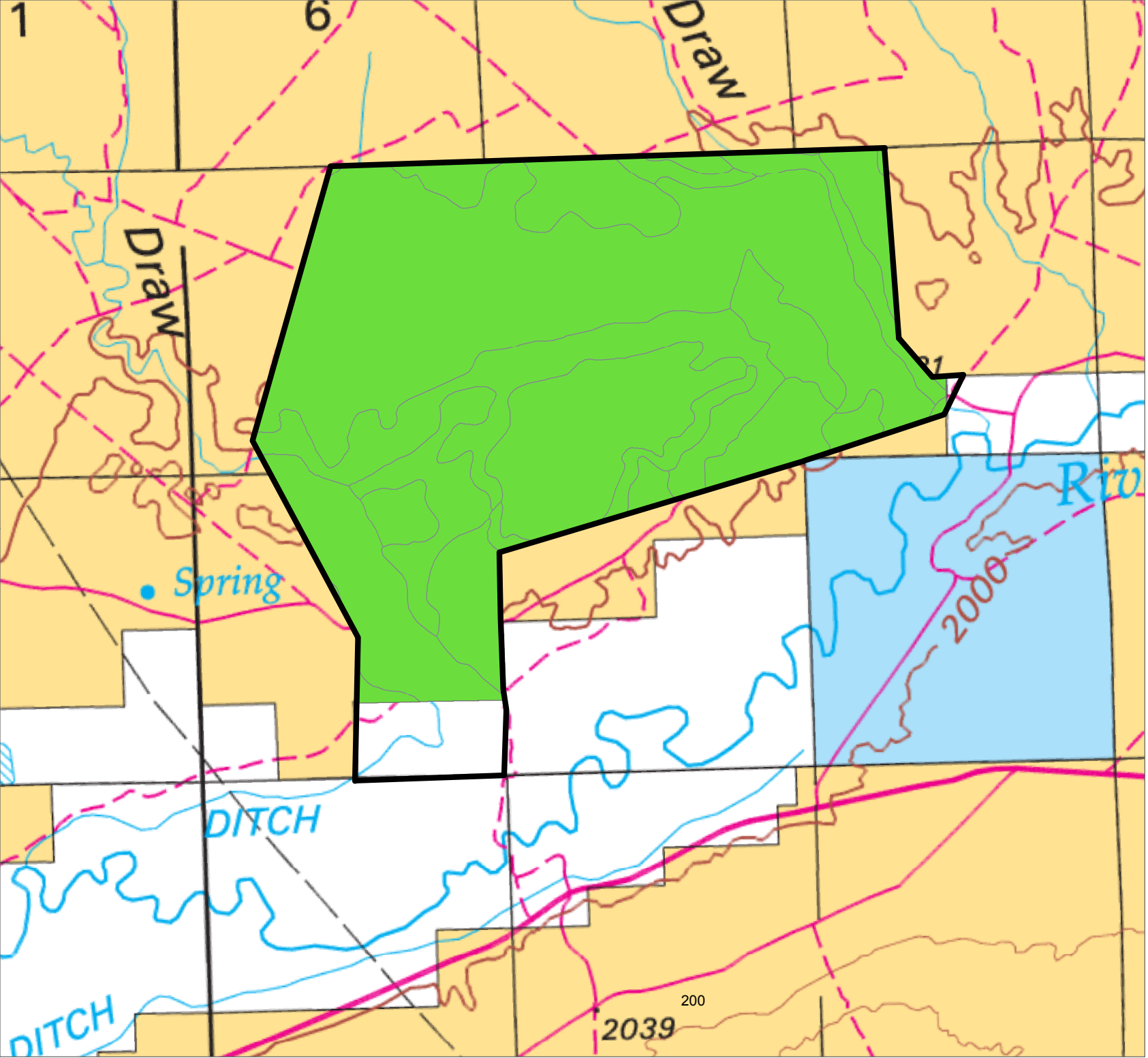
0 0.2

Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



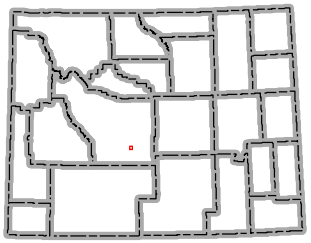
Upper Sweetwater Standards & Guidelines

Myers Fenced Upland

Allotment Boundary
Met 1640 Acres
Not Met 0 Acres

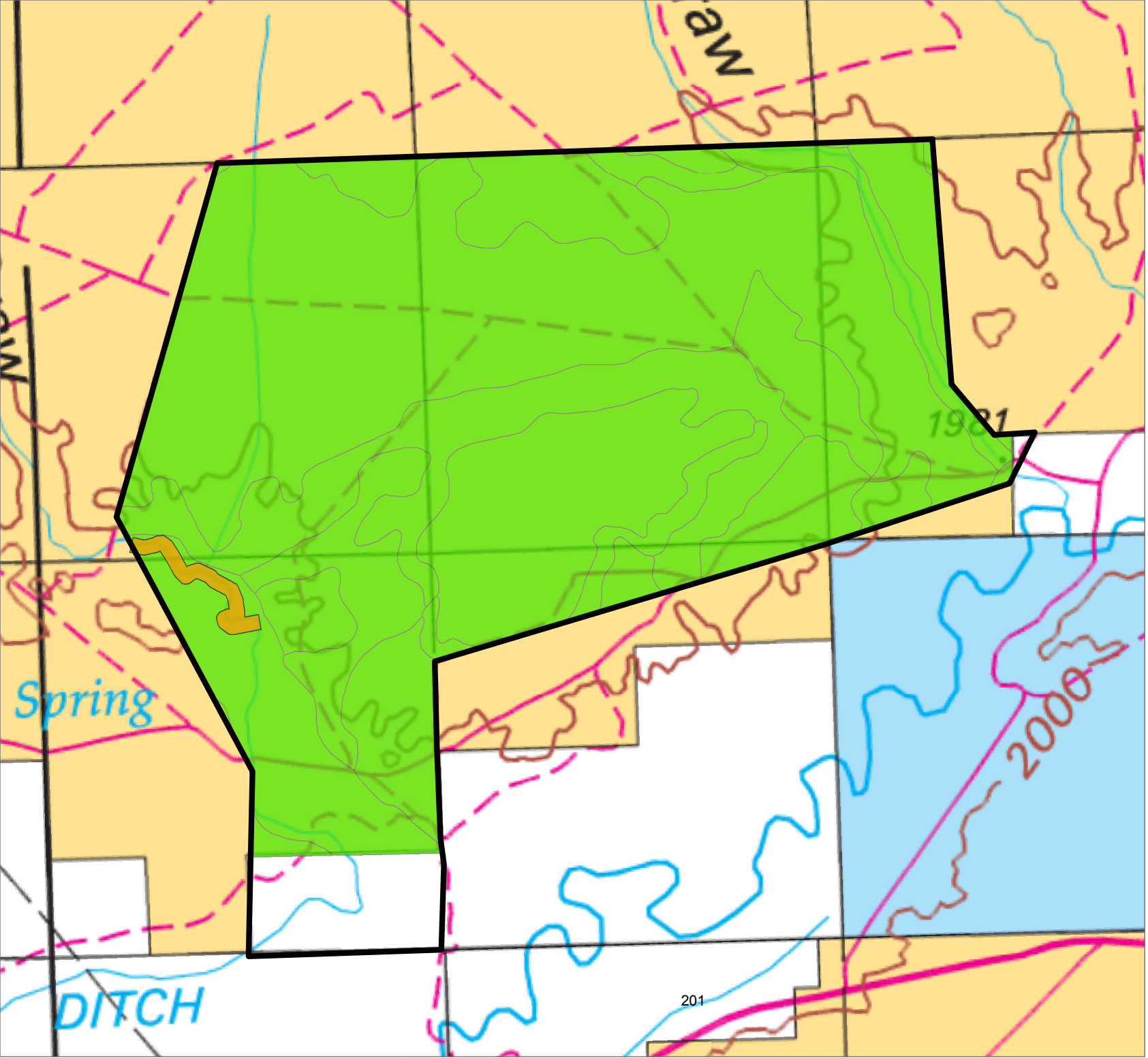
N

0 0.3
Miles



Date: 3/16/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



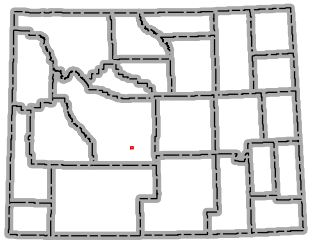
Upper Sweetwater Standards & Guidelines

Myers Fenced Wildlife

Allotment Boundary
Met 1628 Acres
Not Met 12 Acres
Unknown 0 Acres

N

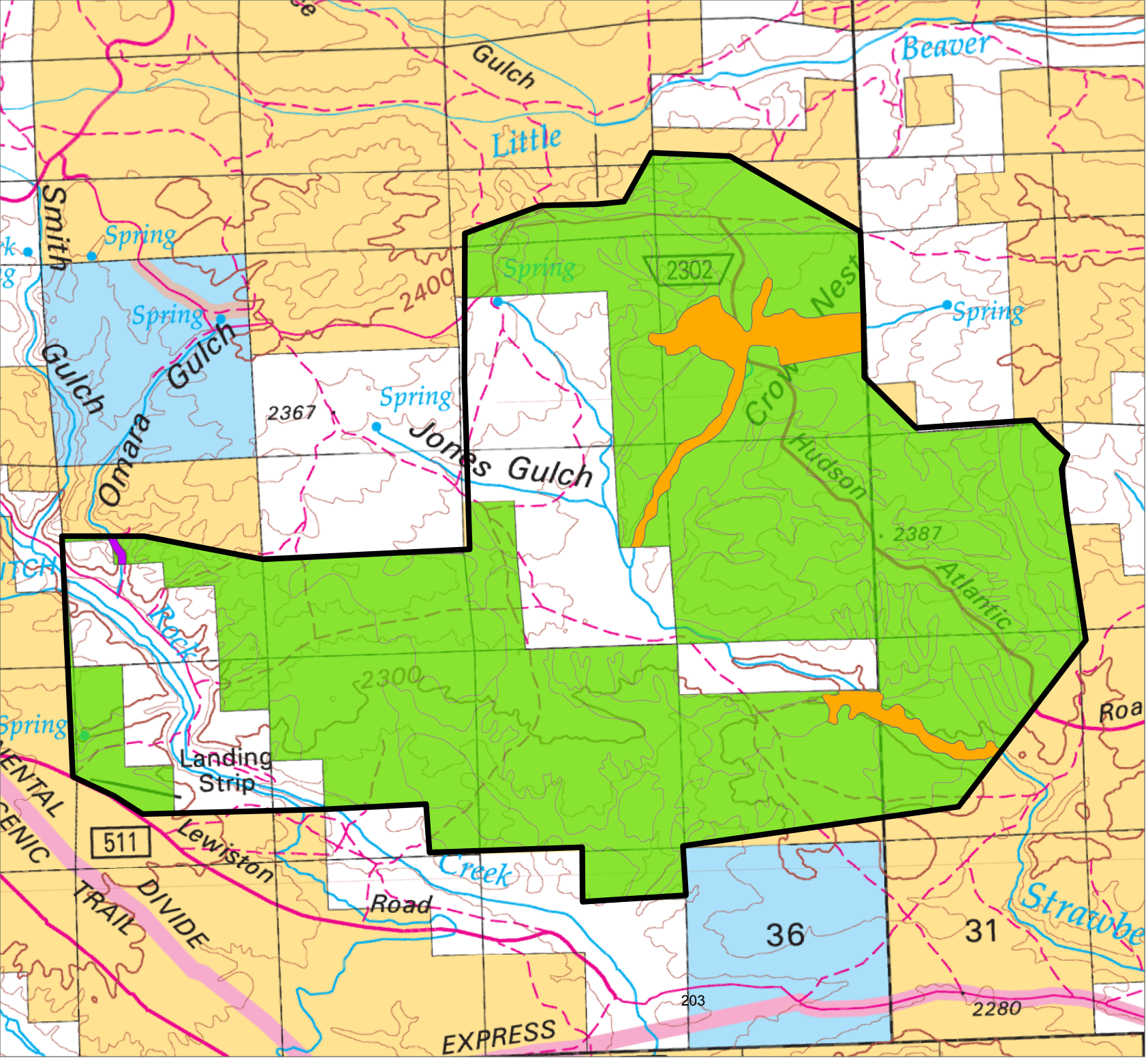
0 0.2
Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Salisbury AMP			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	5,156	229	4
Standard 2: Riparian	132	229	4
Standard 3: Upland	5,389	-	-
Standard 4: Wildlife	5,156	229	4
Standard 5: Water Quality	5,389	-	-
Standard 6: Air Quality	5,389	-	-



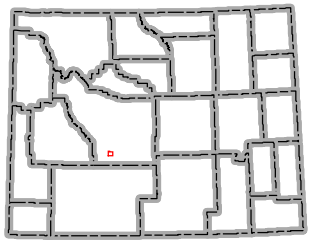
Upper Sweetwater Standards & Guidelines

Salisbury AMP Soils

- Allotment Boundary
- Met 5156 Acres
- Not Met 229 Acres
- Unknown 4 Acres

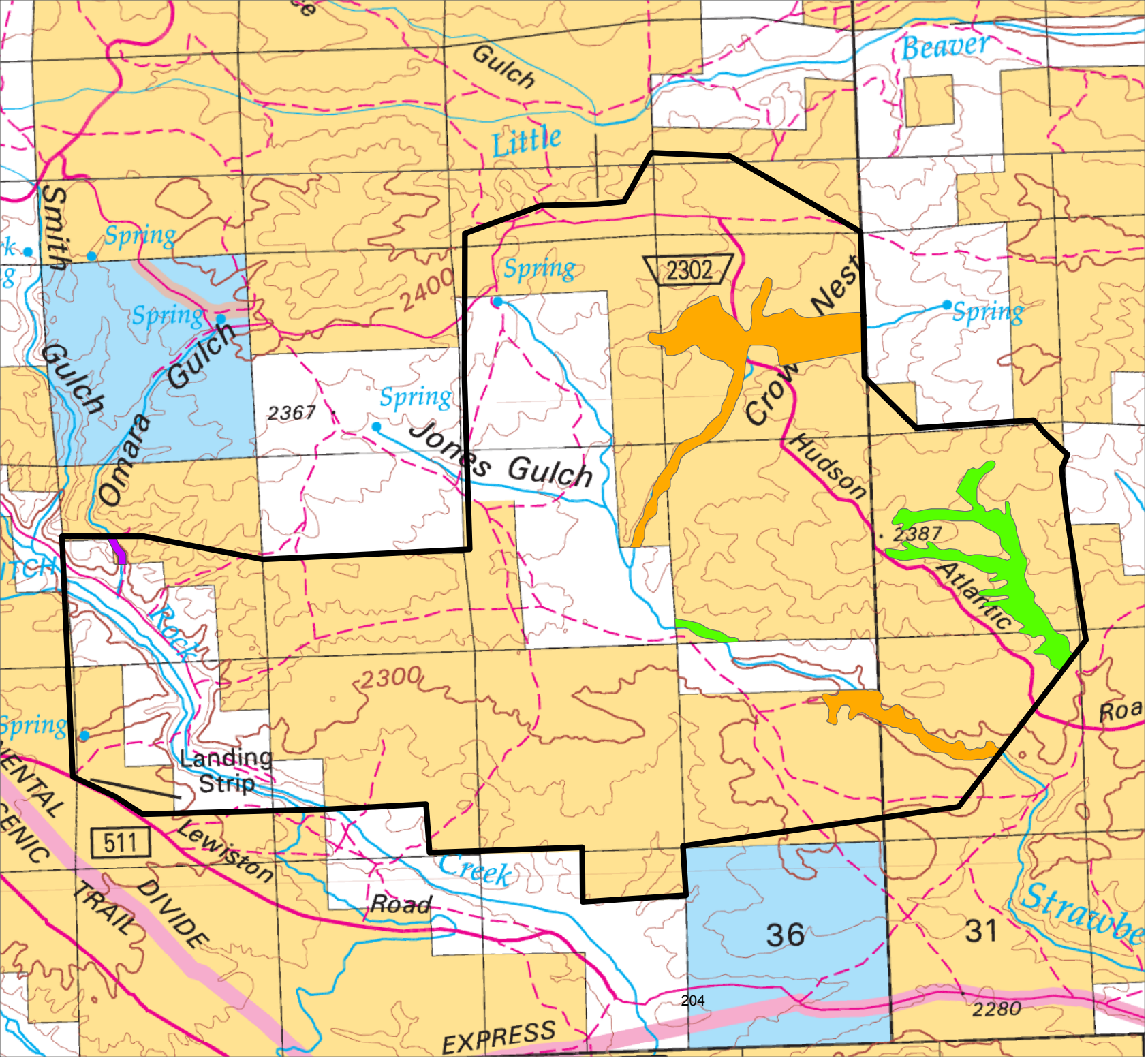
N

0 0.5
Miles



Date: 6/17/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



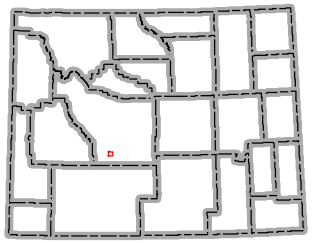
Upper Sweetwater Standards & Guidelines

Salisbury AMP Riparian

- Allotment Boundary
- Met 132 Acres
- Not Met 229 Acres
- Unknown 4 Acres

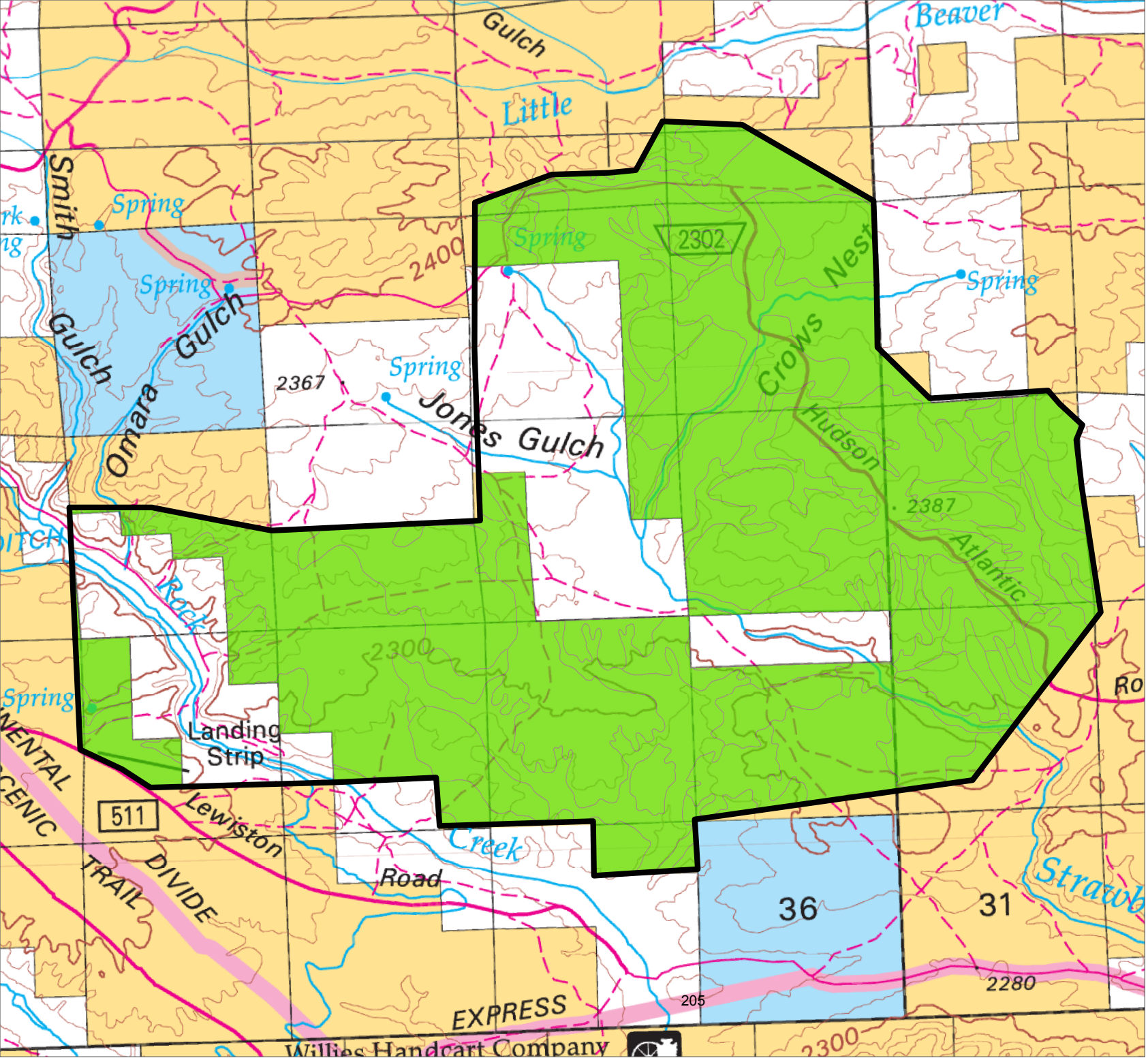
N

0 0.5
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



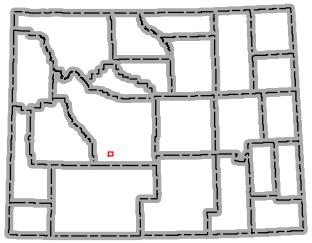
Upper Sweetwater Standards & Guidelines

Salisbury AMP Upland

- Allotment Boundary
- Met 5389 Acres
- Not Met 0 Acres

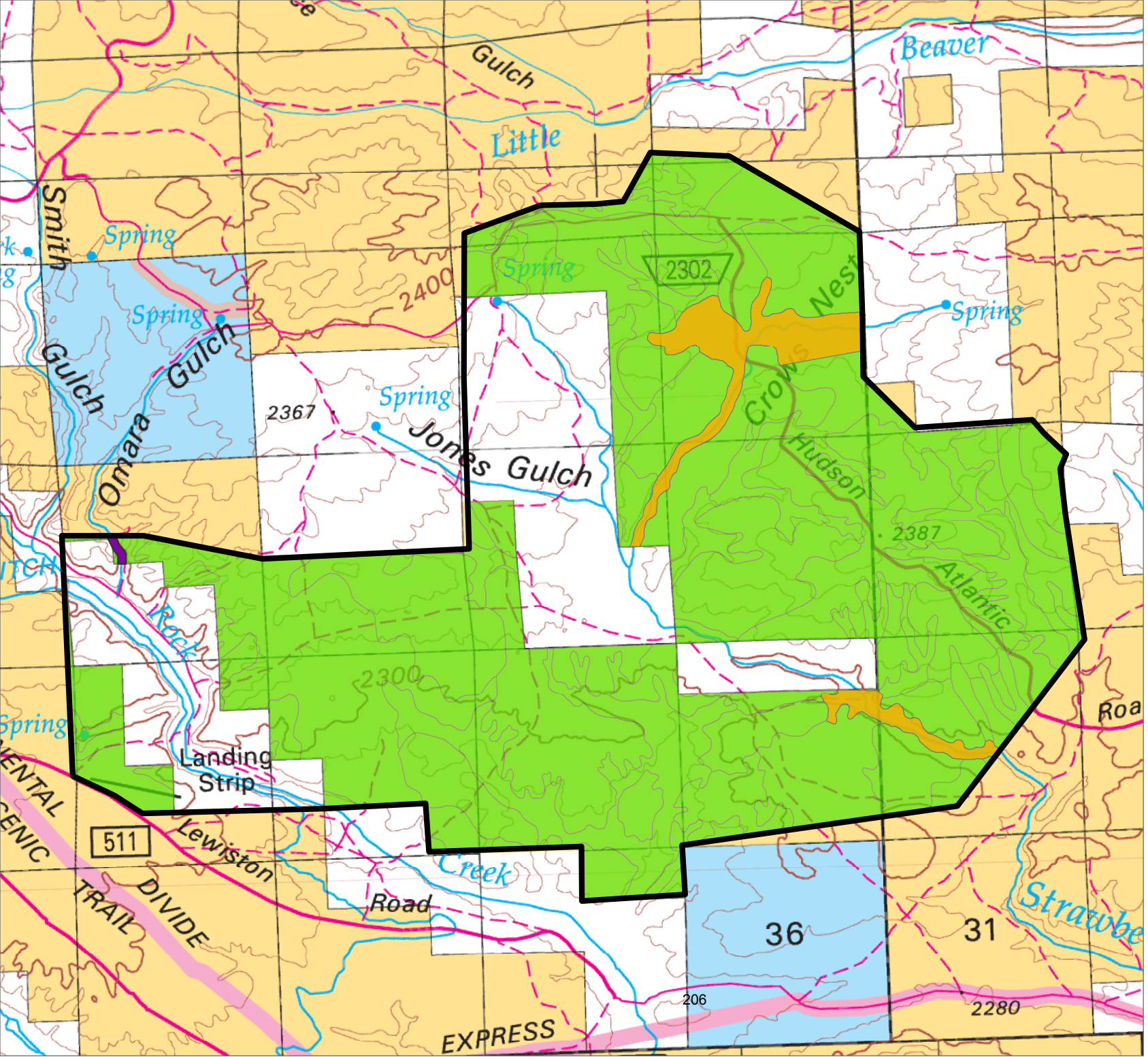
N

0 0.5 Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



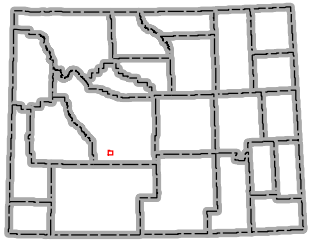
Upper Sweetwater Standards & Guidelines

Salisbury AMP Wildlife

- Allotment Boundary
- Met 5156 Acres
- Not Met 229 Acres
- Unknown 4 Acres

N

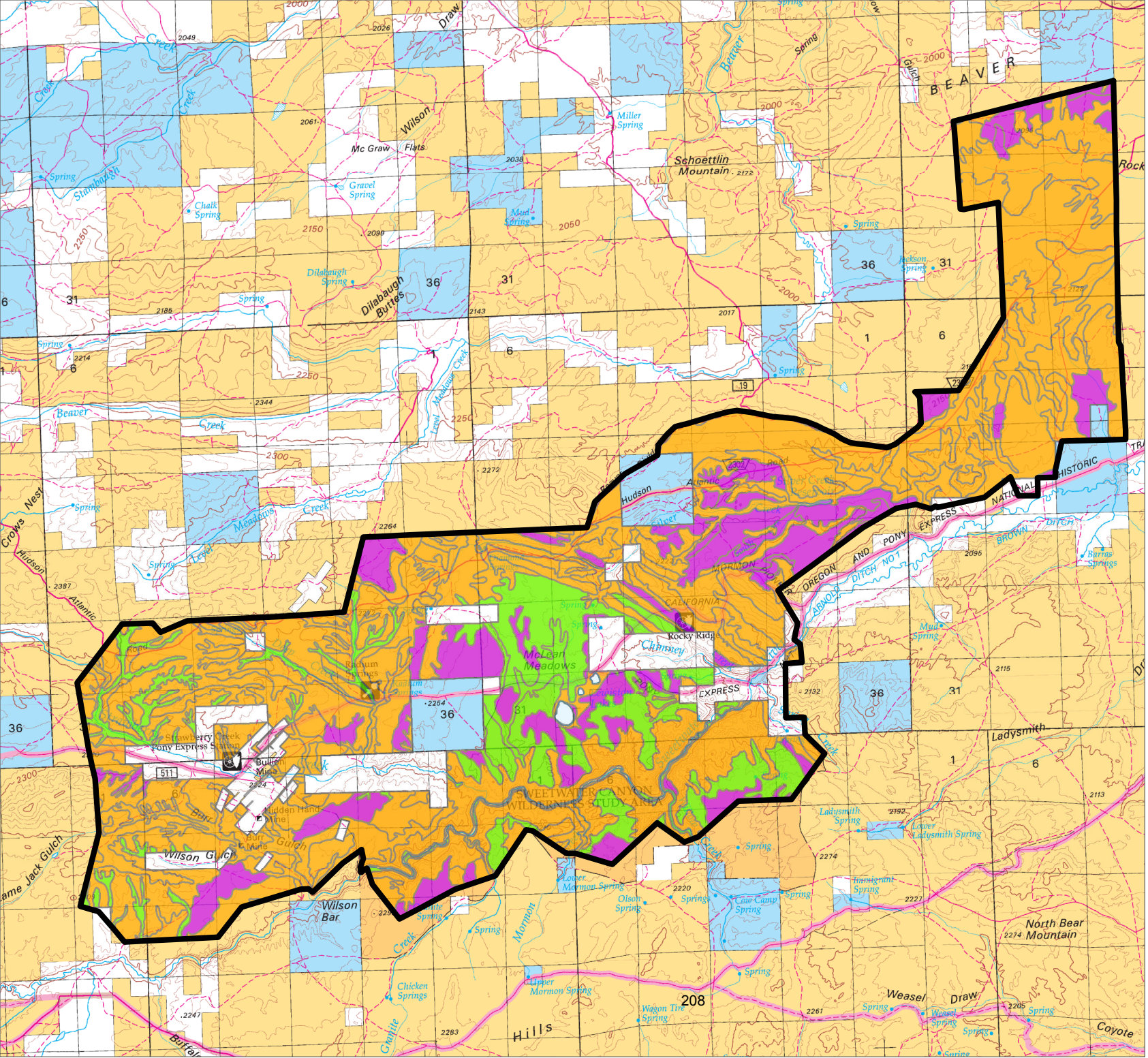
0 0.5
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Silver Creek Common			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	4,399	21,127	5,024
Standard 2: Riparian	1,478	807	-
Standard 3: Upland	3,359	26,233	3,360
Standard 4: Wildlife	4,844	26,379	1,718
Standard 5: Water Quality	32,941	-	-
Standard 6: Air Quality	32,941	-	-



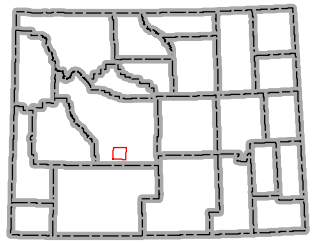
Upper Sweetwater Standards & Guidelines

Silver Creek Common Soils

- Allotment Boundary
- Met 4399 Acres
- Not Met 21127 Acres
- Unknown 5024 Acres

N

0 1.5
Miles

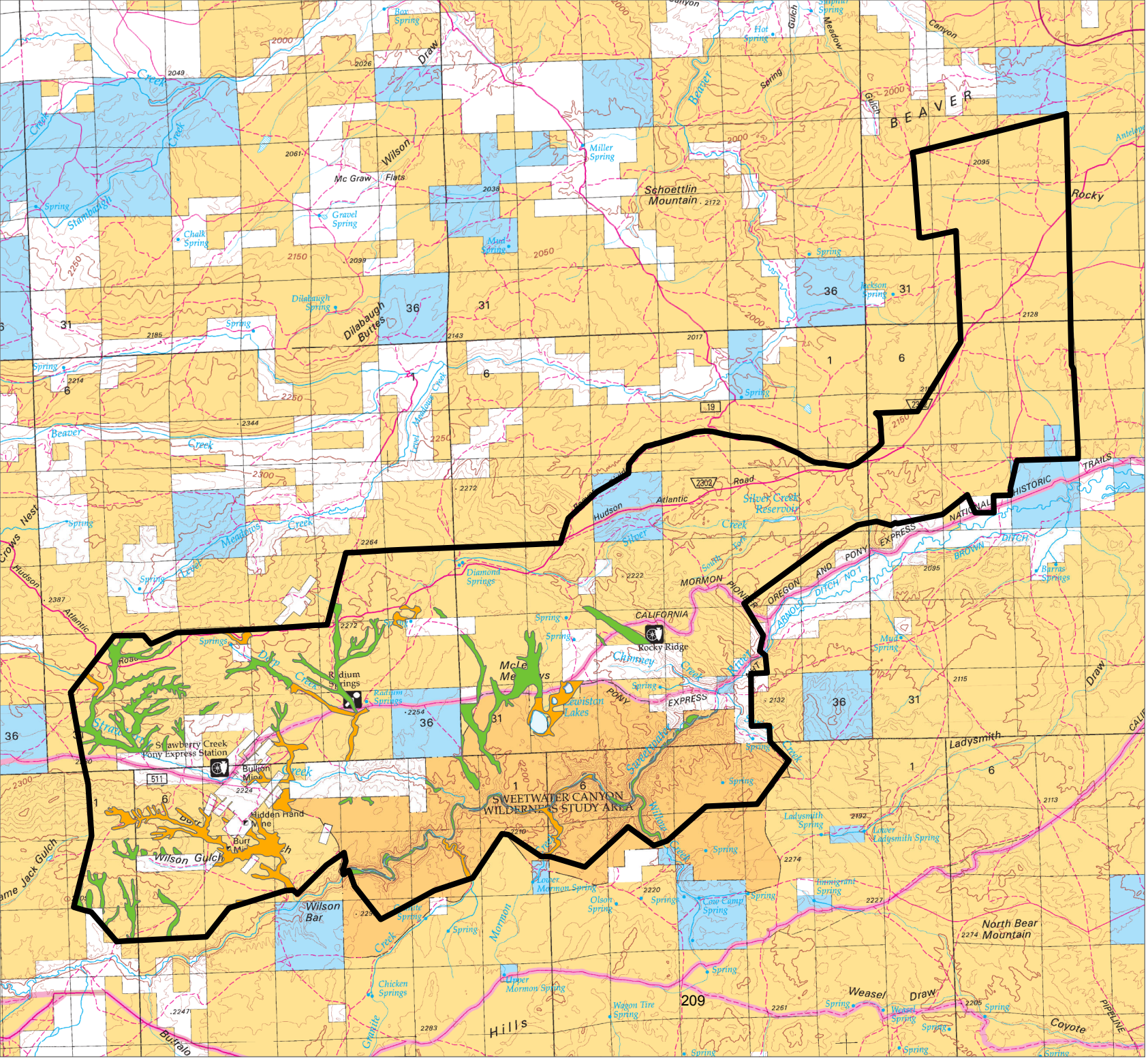


Date: 3/30/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Upper Sweetwater Standards & Guidelines

Silver Creek Common Riparian



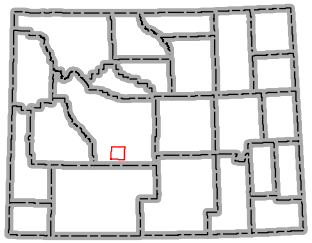
Allotment Boundary

Met 1478 Acres

Not Met 807 Acres

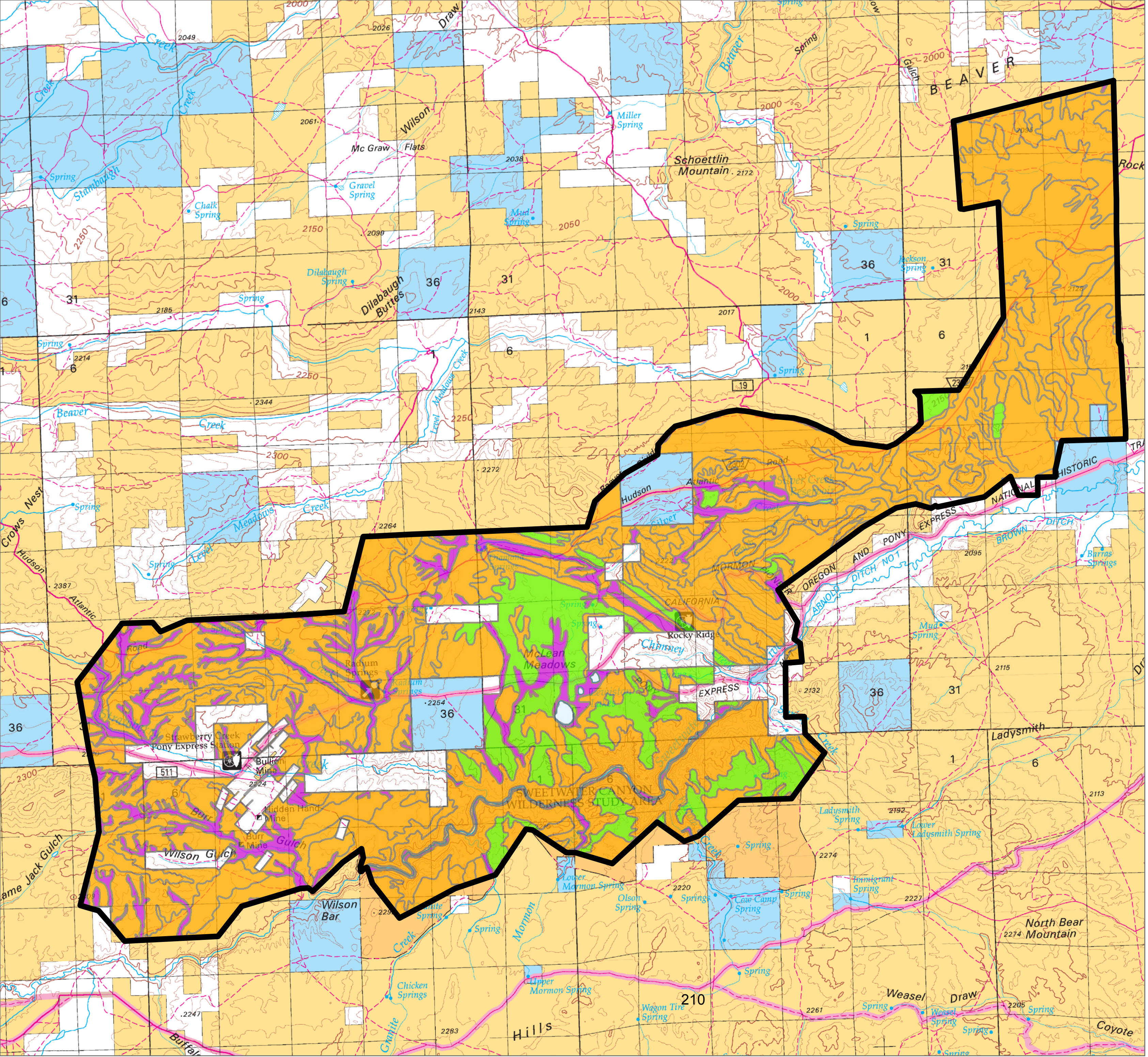
N

0 1.5
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines

Silver Creek Common Upland

Allotment Boundary

Met 3359 Acres

Not Met 26233 Acres

Unknown 3360 Acres

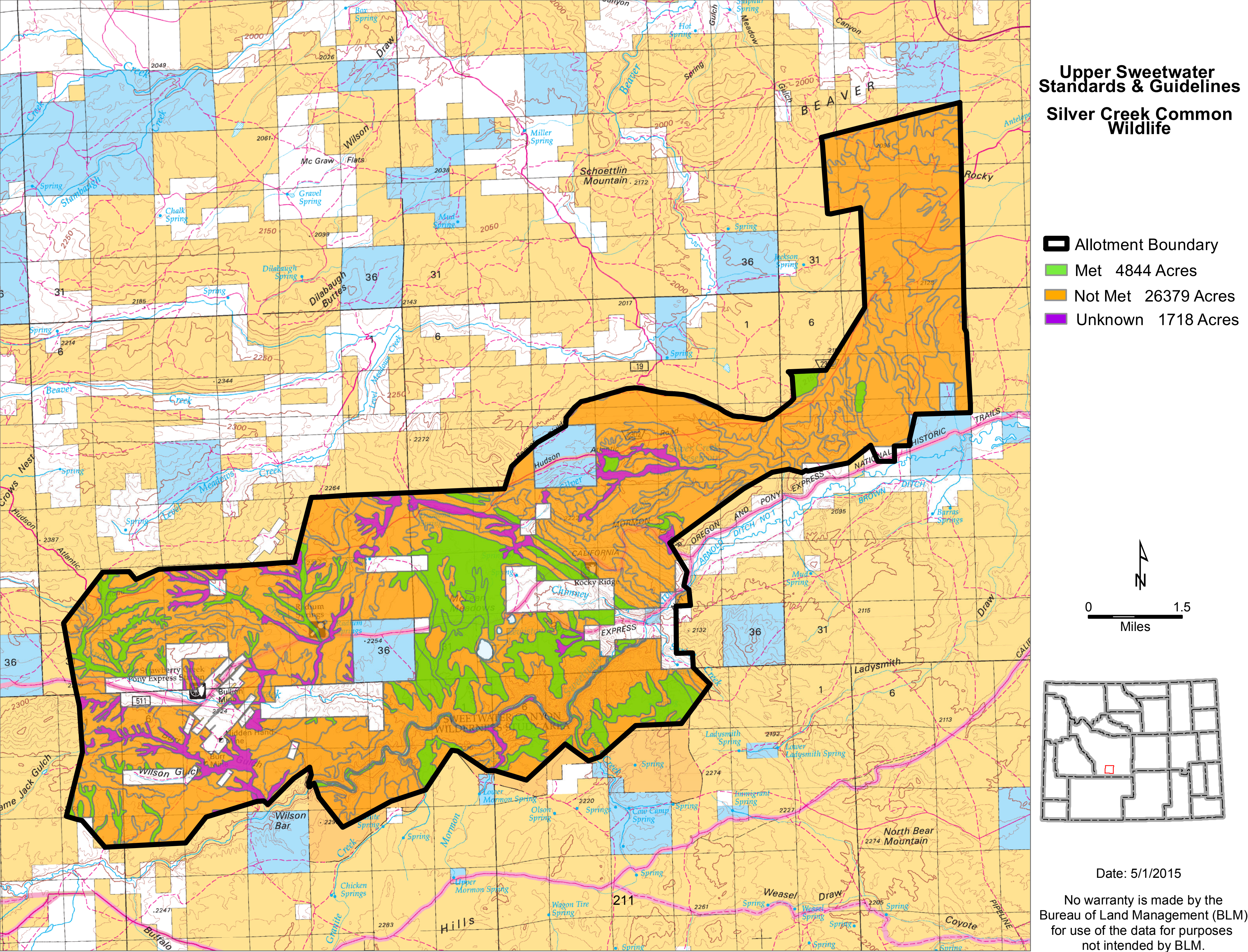
N

0 1.5

Miles

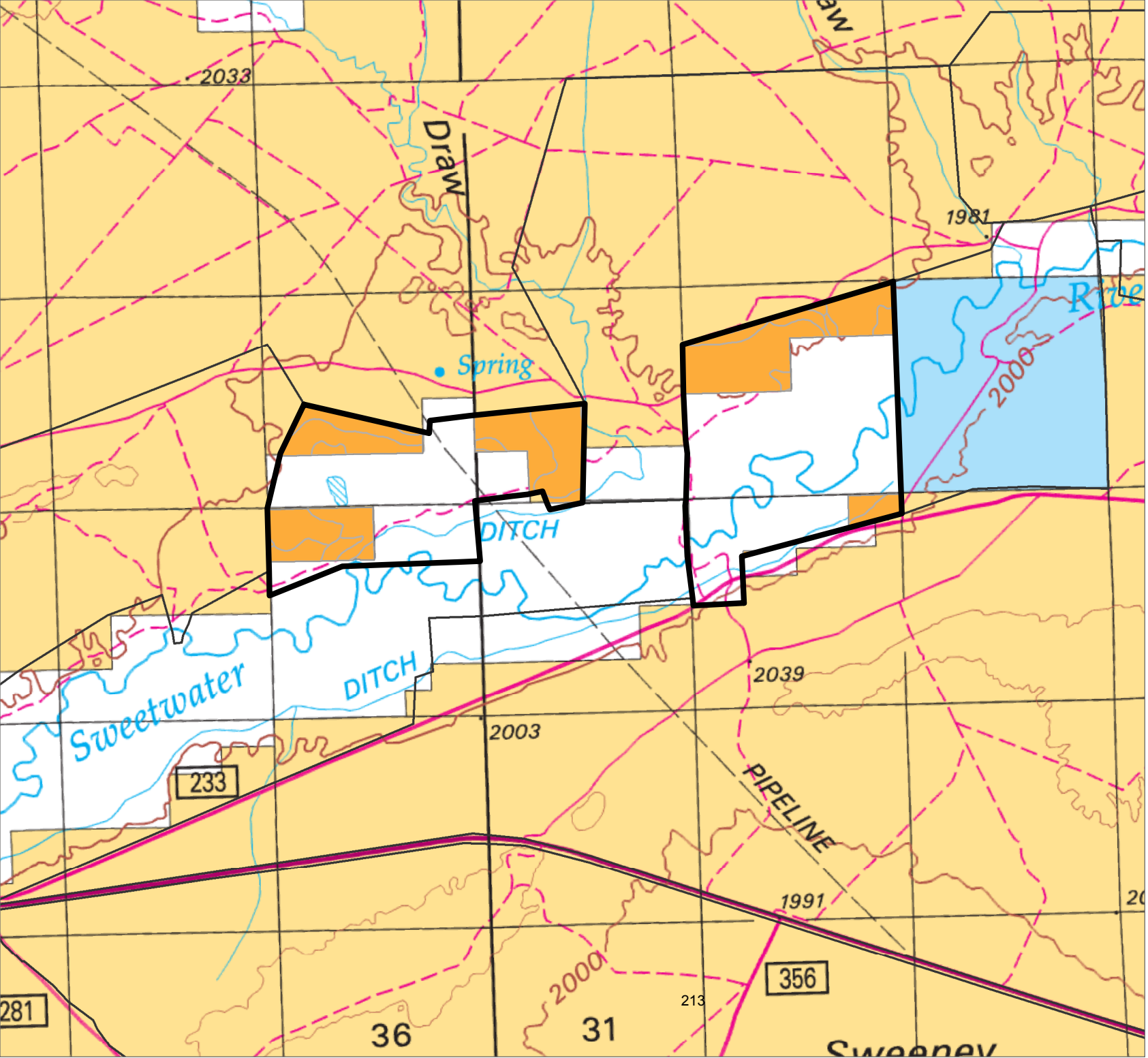
Date: 3/30/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



Upper Sweetwater Standards & Guidelines
Silver Creek Common Wildlife
Allotment Boundary
Met 4844 Acres
Not Met 26379 Acres
Unknown 1718 Acres
N
0 1.5
Miles
Date: 5/1/2015
No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Trent & Home Place			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	-	427	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	-	427	-
Standard 4: Wildlife	-	427	-
Standard 5: Water Quality	427	-	-
Standard 6: Air Quality	427	-	-



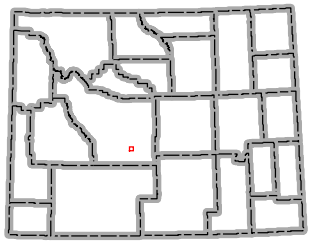
Upper Sweetwater Standards & Guidelines

Trent & Home Place Soils

Allotment Boundary
Met 0 Acres
Not Met 427 Acres

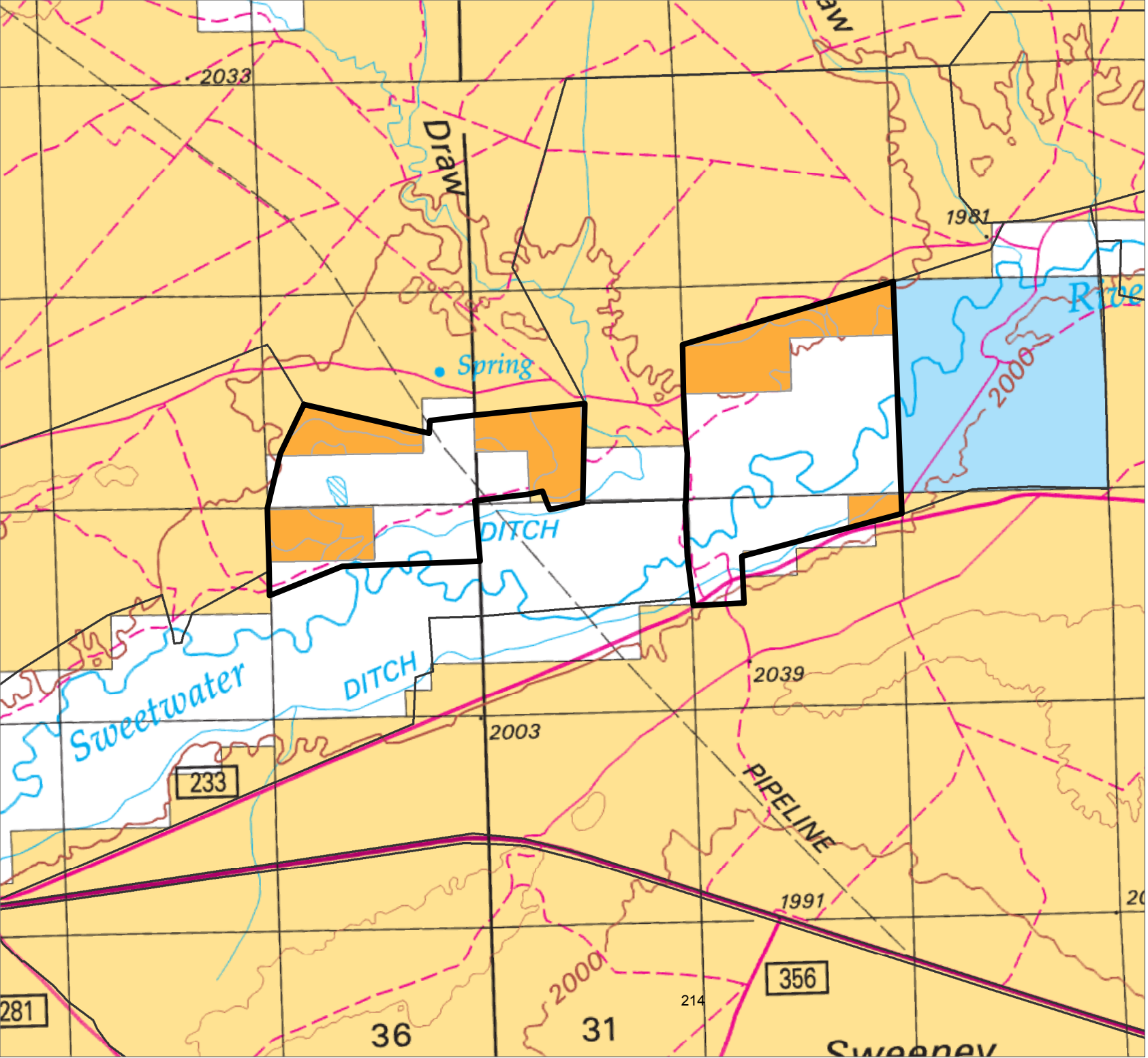
N

0 0.5
Miles



Date: 3/13/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



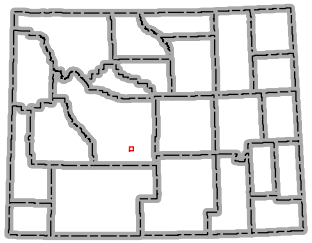
Upper Sweetwater Standards & Guidelines

Trent & Home Place Upland

Allotment Boundary
Met 0 Acres
Not Met 427 Acres

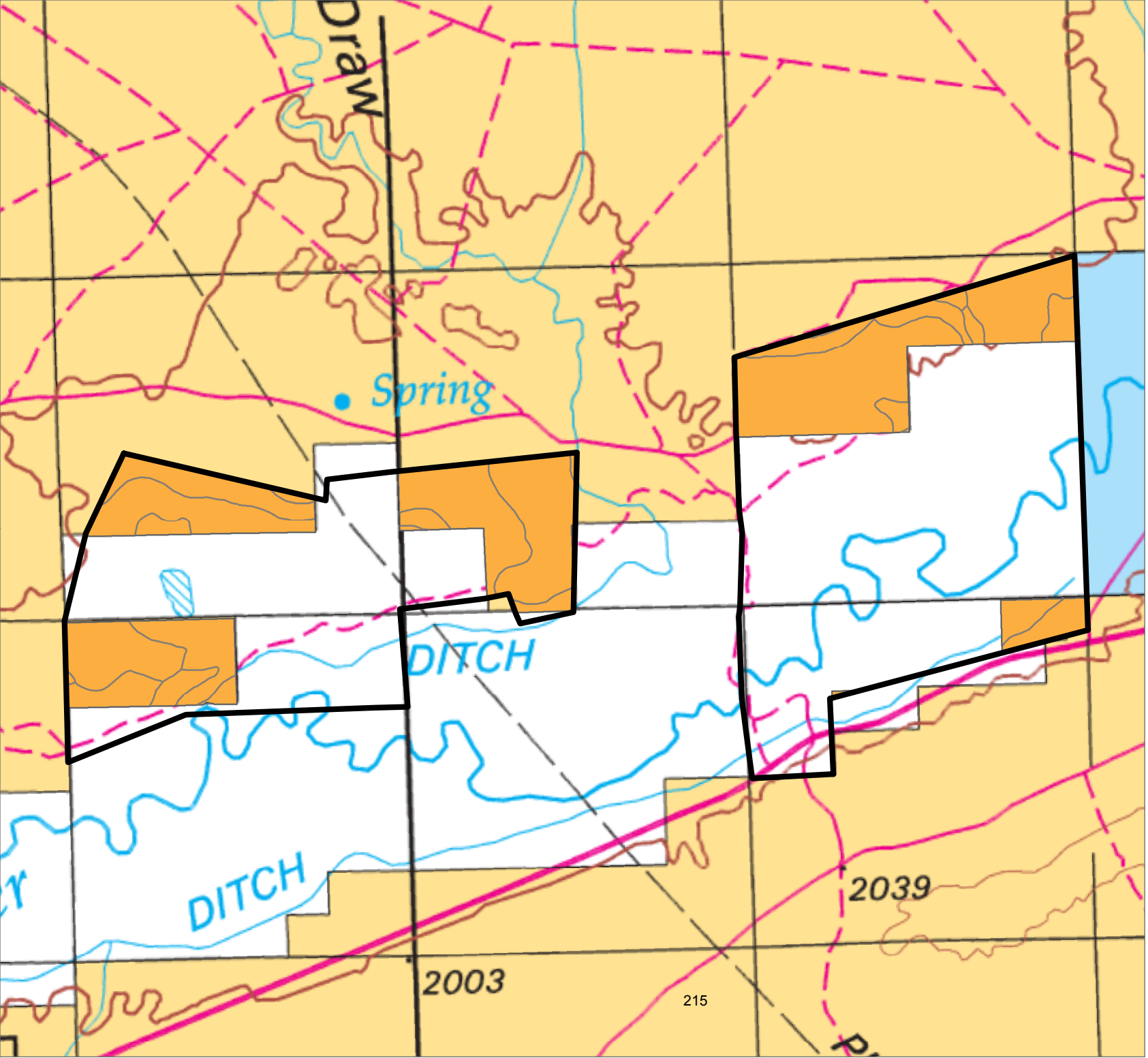
N

0 0.5
Miles



Date: 3/13/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

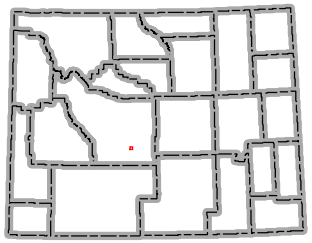


Upper Sweetwater Standards & Guidelines Trent & Home Place Wildlife

- Allotment Boundary
- Met 0 Acres
- Not Met 427 Acres
- Unknown 0 Acres

N

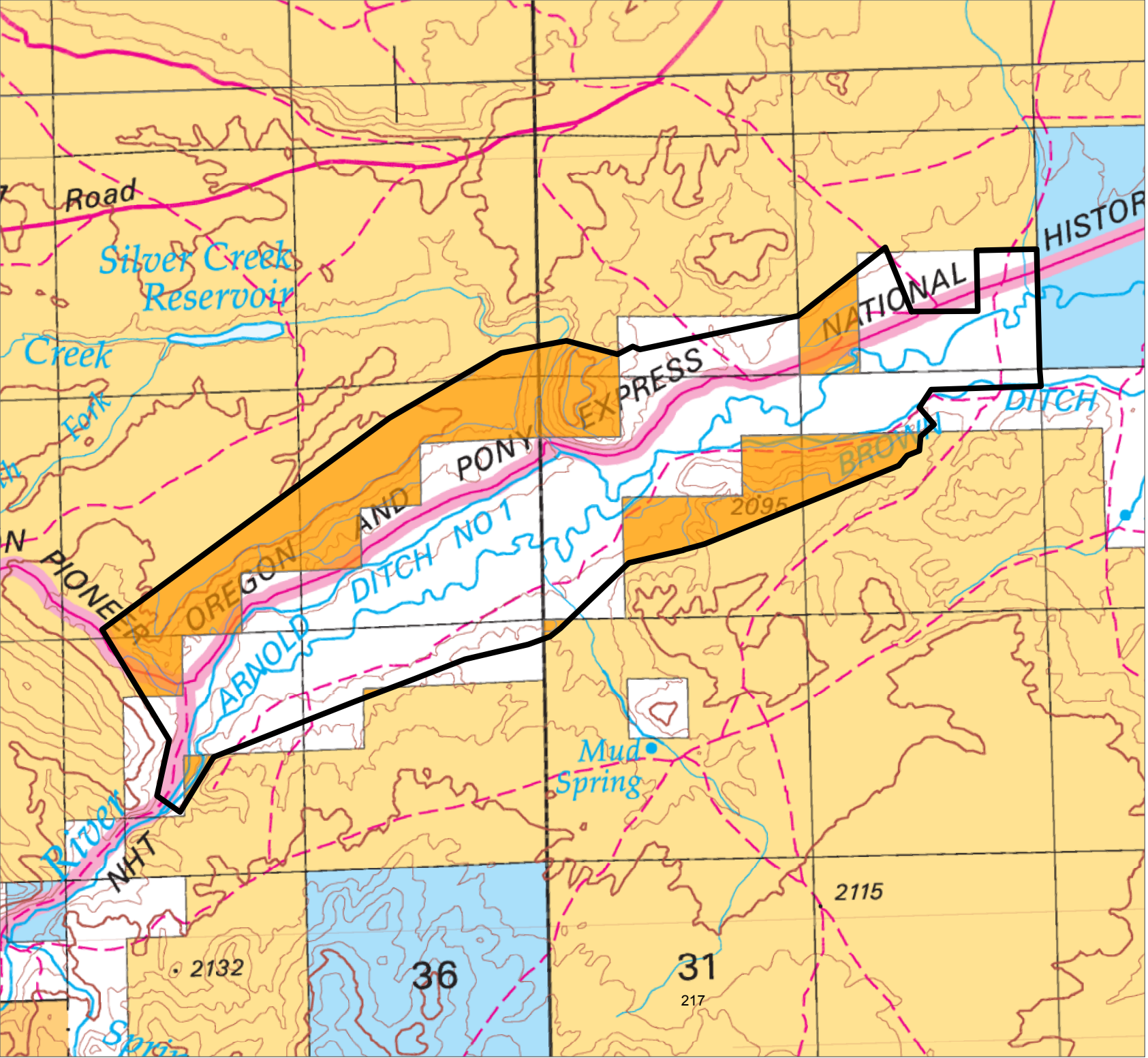
0 0.3
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Upper Ellis Ranch			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	-	715	-
Standard 2: Riparian	-	-	6
Standard 3: Upland	715	-	-
Standard 4: Wildlife	709	-	6
Standard 5: Water Quality	715	-	-
Standard 6: Air Quality	715	-	-



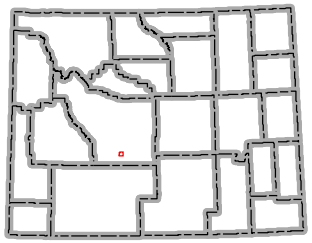
Upper Sweetwater Standards & Guidelines

Upper Ellis Ranch Soils

Allotment Boundary
Met 0 Acres
Not Met 715 Acres

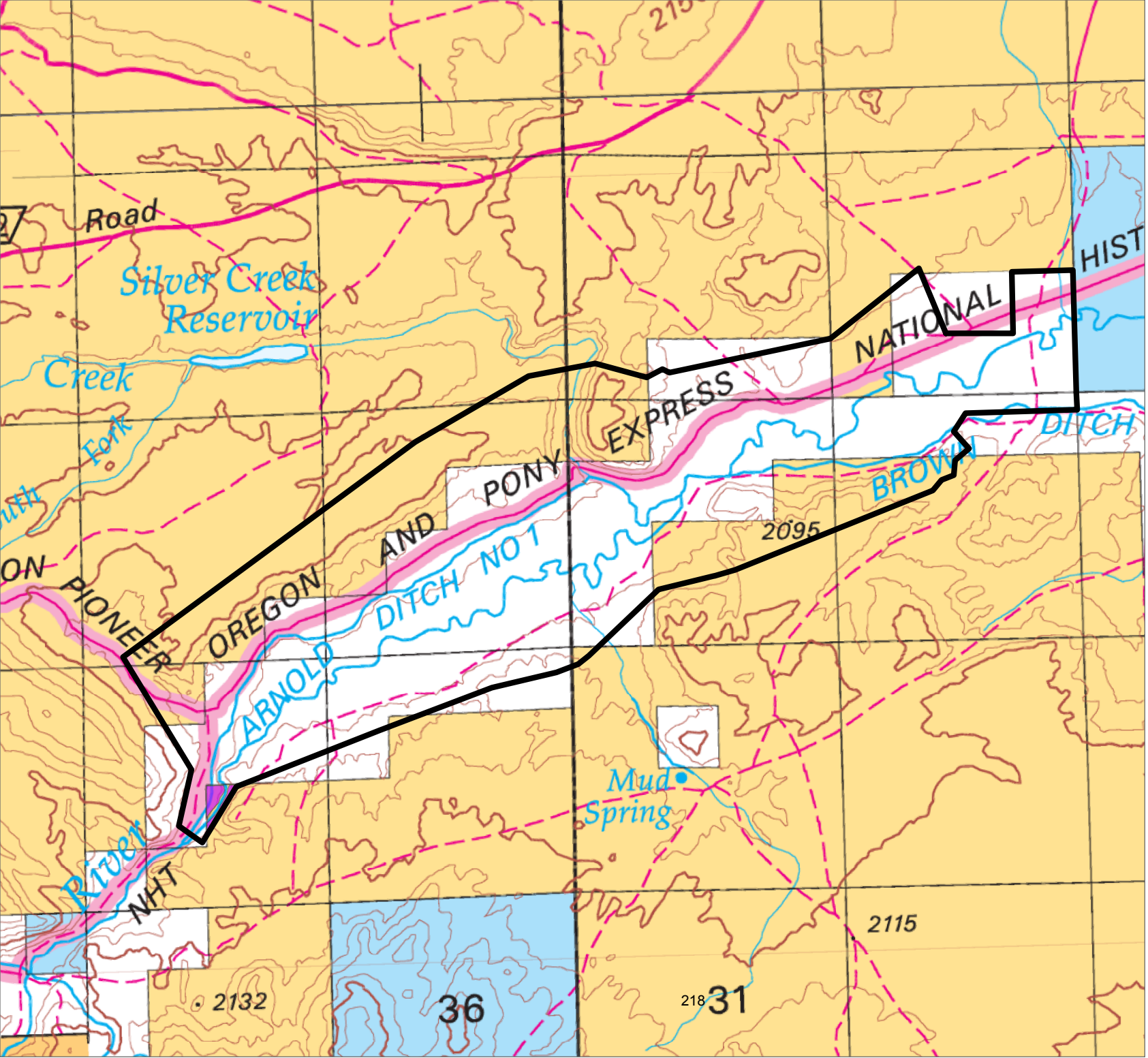
N

0 0.4
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



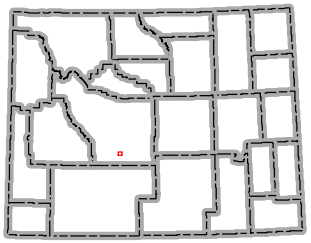
Upper Sweetwater Standards & Guidelines

Upper Ellis Ranch Riparian

- Allotment Boundary
- Met 0 Acres
- Not Met 0 Acres
- Unknown 6 Acres

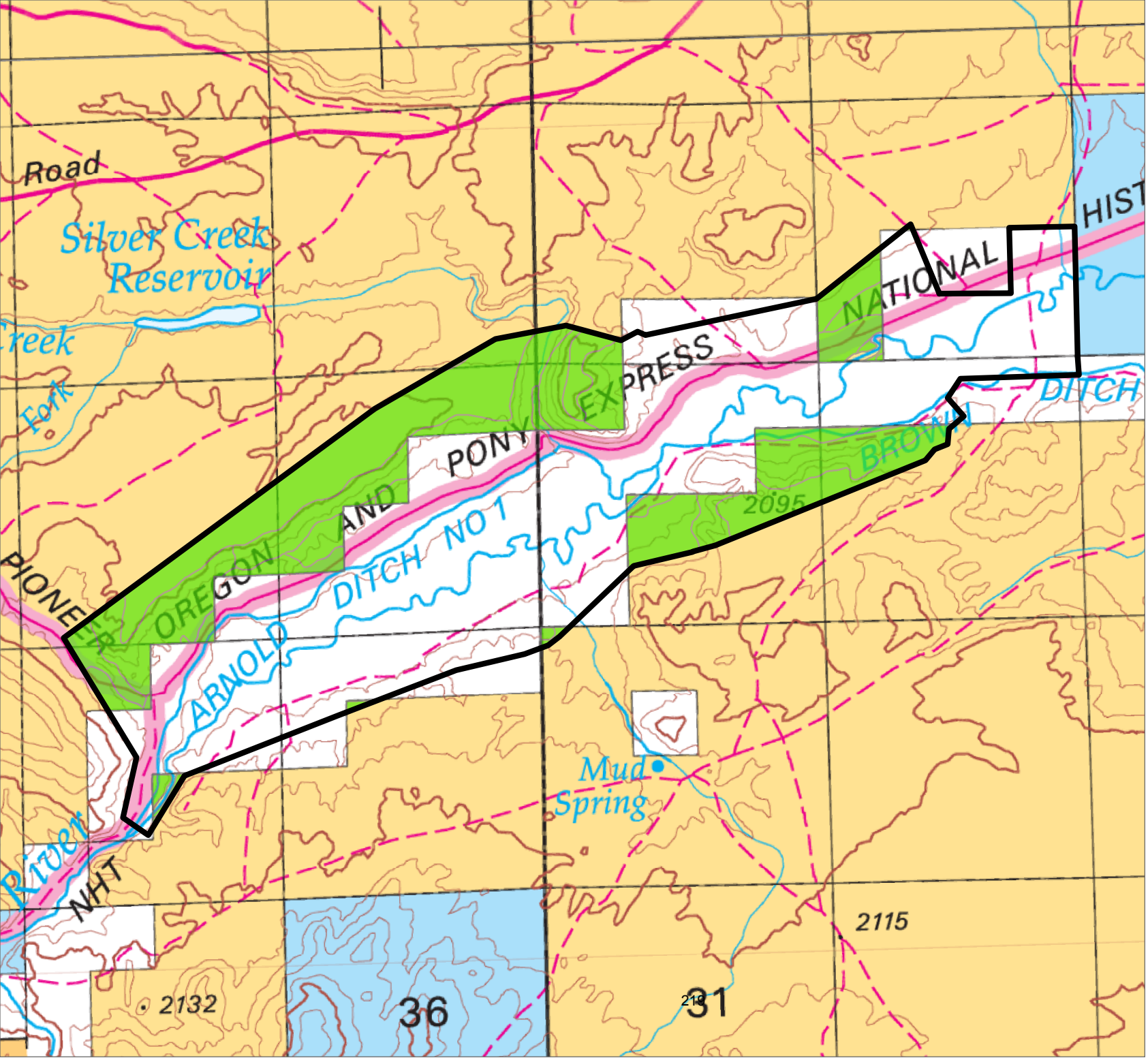
N

0 0.4
Miles



Date: 4/14/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



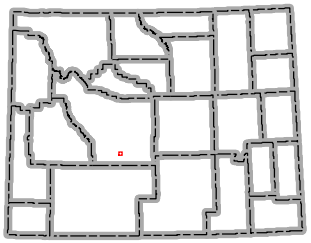
Upper Sweetwater Standards & Guidelines

Upper Ellis Ranch Upland

Allotment Boundary
Met 715 Acres
Not Met 0 Acres

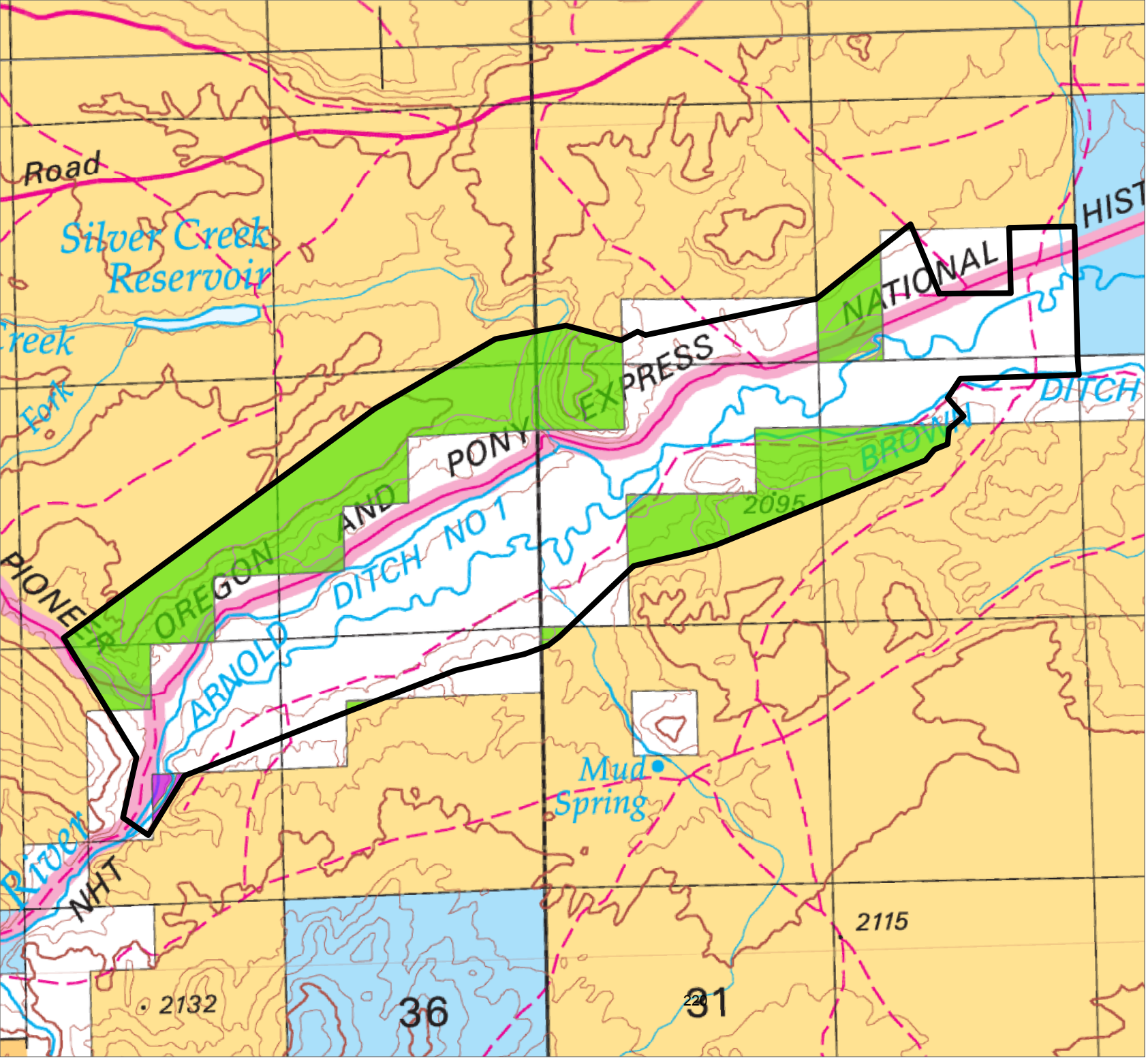
N

0 0.4
Miles



Date: 3/18/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



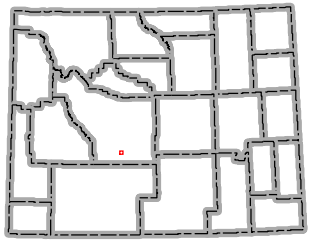
Upper Sweetwater Standards & Guidelines

Upper Ellis Ranch Wildlife

- Allotment Boundary
- Met 709 Acres
- Not Met 0 Acres
- Unknown 6 Acres

N

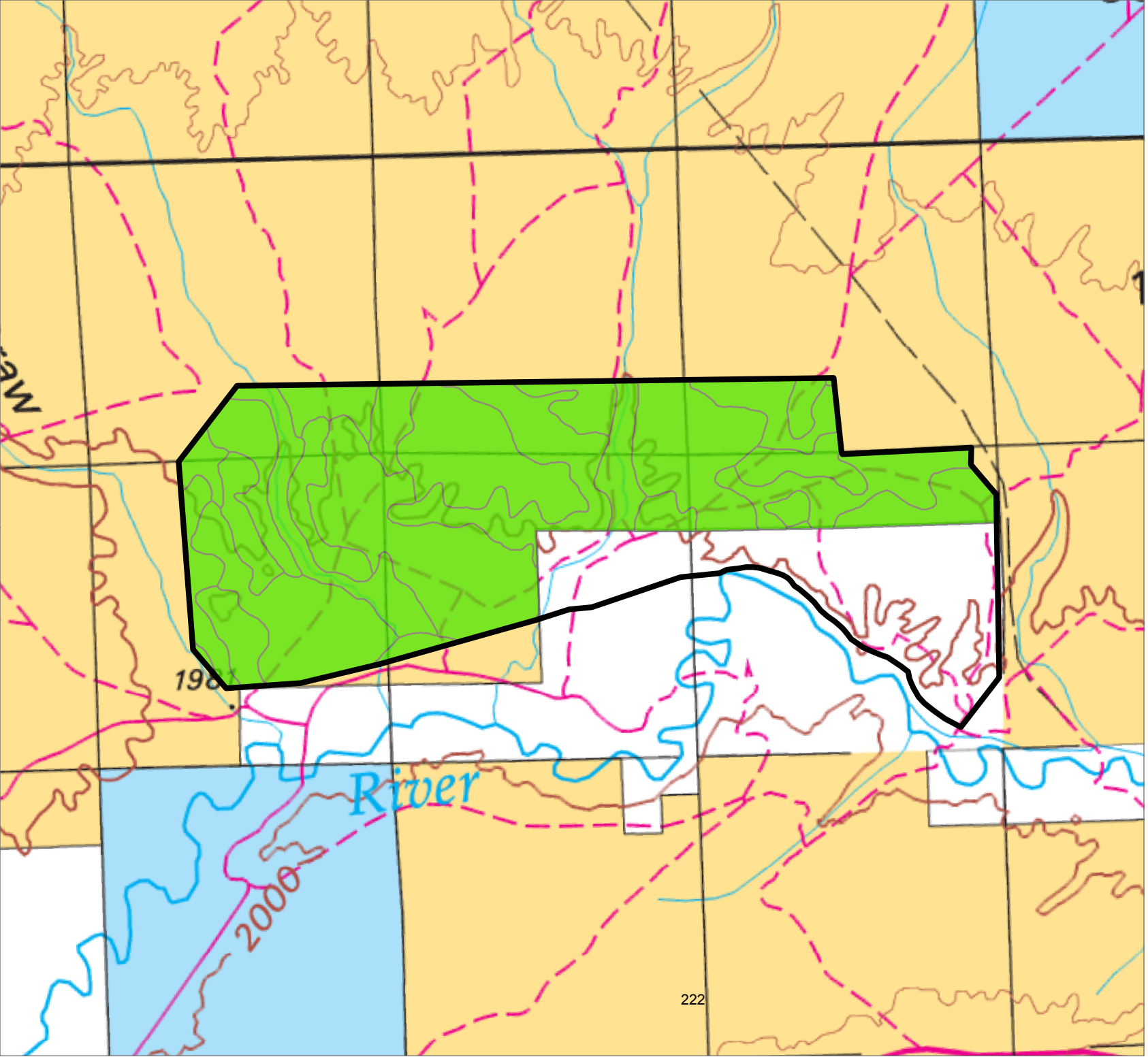
0 0.4
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Allotment: Whitlock Fenced			
	Acres Meeting Standard	Acres Not Meeting Standard	Unknown Acres
Standard 1: Soils	1,057	-	-
Standard 2: Riparian	-	-	-
Standard 3: Upland	1,057	-	-
Standard 4: Wildlife	1,057	-	-
Standard 5: Water Quality	1,057	-	-
Standard 6: Air Quality	1,057	-	-



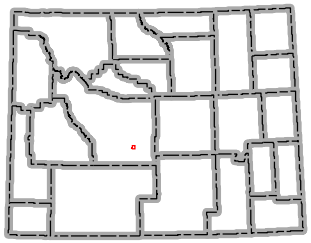
Upper Sweetwater Standards & Guidelines

Whitlock Fenced Soil

Allotment Boundary
Met 1057 Acres
Not Met 0 Acres

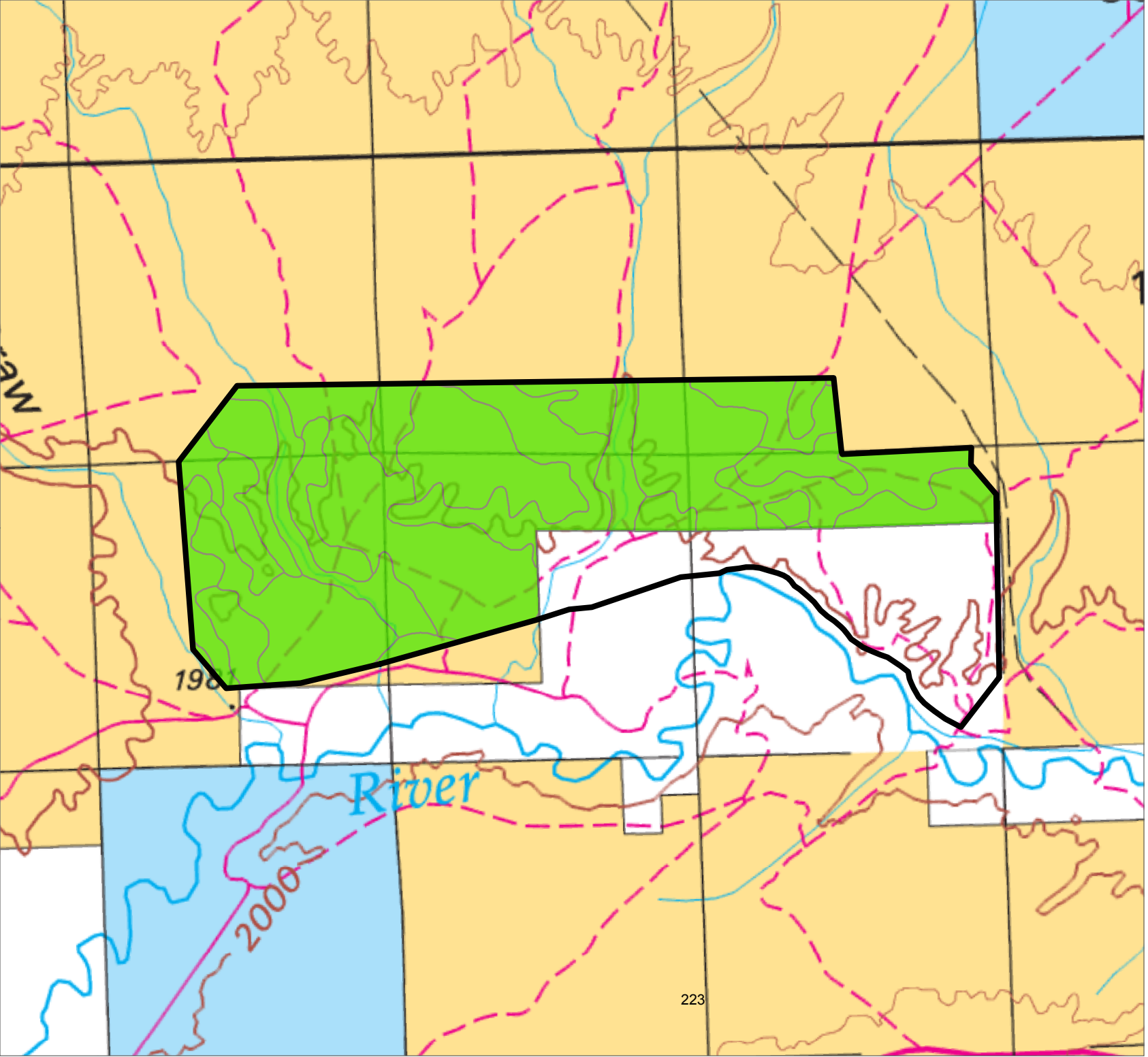
N

0 0.3
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



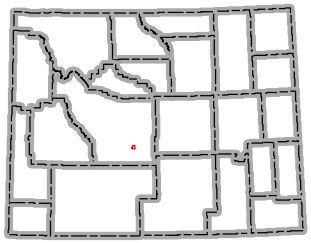
Upper Sweetwater Standards & Guidelines

Whitlock Fenced Upland

Allotment Boundary
Met 1057 Acres
Not Met 0 Acres

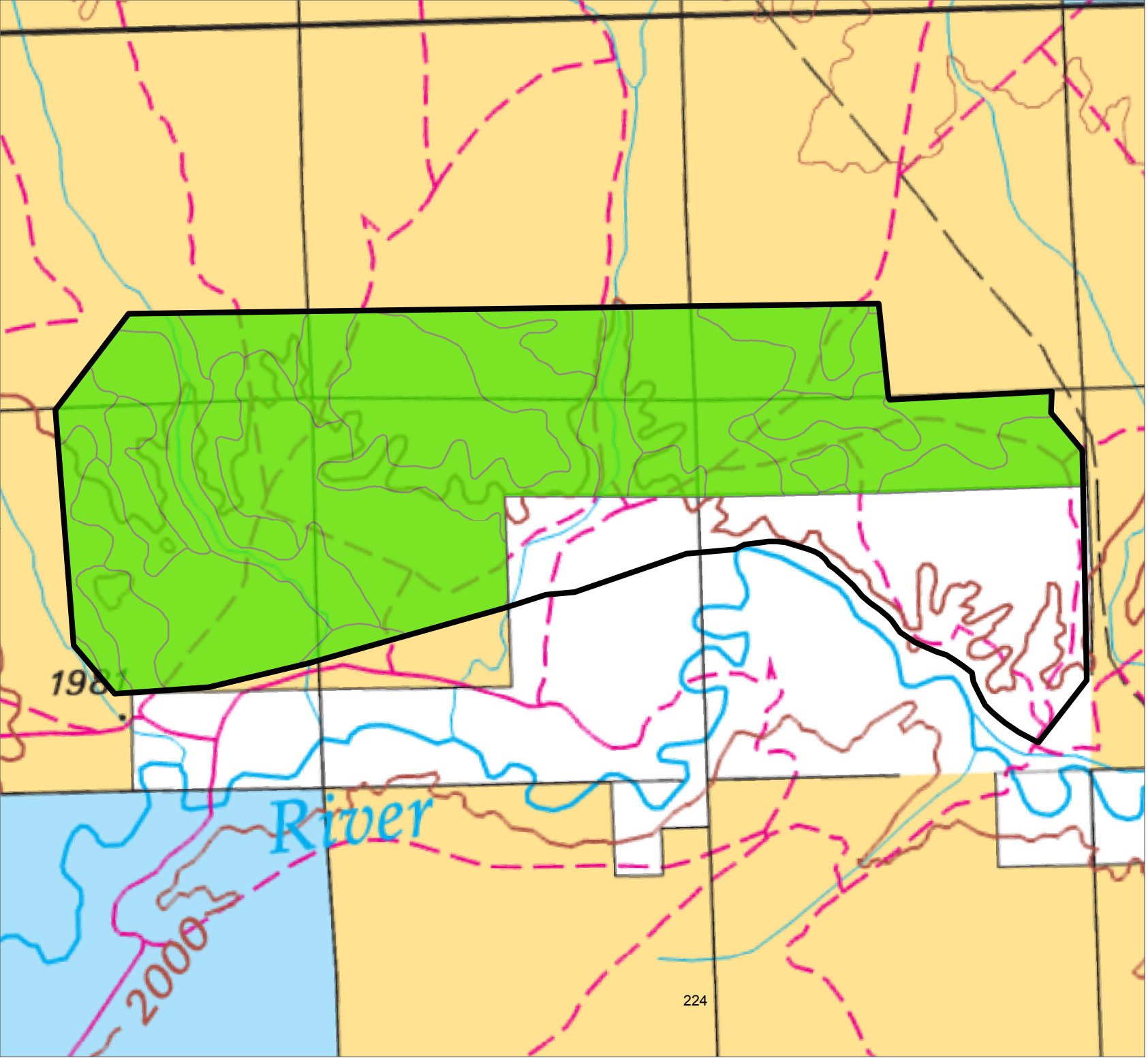
N

0 0.3
Miles



Date: 3/12/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



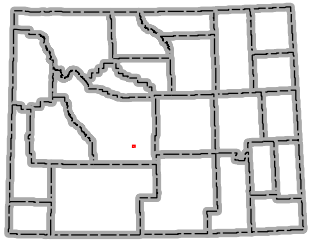
Upper Sweetwater Standards & Guidelines

Whitlock Pasture Wildlife

Allotment Boundary
Met 1057 Acres
Not Met 0 Acres
Unknown 0 Acres

N

0 0.2
Miles



Date: 5/1/2015

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.

Appendix 5:

Participants of the Upper Sweetwater Landscape Land Health Assessment

Appendix 5:

Participants of the Upper Sweetwater Landscape Land Health Assessment

Bureau of Land Management:
-Amanda Small
-Curtis Bryan
-Judi Mott
-Melissa Rutledge
-Roy Packer
-Sarah Wempen
-Steve Renner
-Sue Oberlie
-Sydney Thielke
-Tim Kramer
-Tim Vosburgh
-Trent Staheli

Wyoming Department of Agriculture:
- Jessica Crowder

NRCS/ Popo Agie Conservation District:
-Mandi Hirsch

Grazing Permittees:
-Doug Thompson
-Martha Hellyer
-Mike Ruby
-Rhett Abernathy
-Shane Sanderson
-Thad Dockery
-Tom Abernathy

Western Watersheds Project:
-Jonathan Ratner