

Battle Axe Ranch

Coordinated Resource Management Plan



(View looking west towards The Pinalon and White Canyon Wilderness Area, Photograph by Wade Lueck 2008)

Introduction

The Battle Axe Ranch is located 10 miles south of Superior, Arizona on State Highway 177. The ranch is approximately 85 miles north of Tucson, Arizona and 60 miles east of Phoenix, Arizona. The headquarters is located off State Highway 177 at 48070 East Cliffside Road, Kearny, AZ. 85237. The ranch runs on 19,573 acres of land leased from the Bureau of Land Management, Arizona State Land Department and the ASARCO Mining Company in Townships 2, 3 and 4 South and Ranges 12 and 13 East (Teapot Mountain and Grayback Quads).

It is bounded on the south by the Gila River, on the north by the Tonto National Forest, and on the east by the Granite Mountains. The ranch is part of the Donnelly sub-basin in the Middle Gila River watershed (HUA # 15050100), and the major drainages present on the ranch are Walnut Canyon and White Canyon. The ranch is situated in a 12-16" precipitation zone and occurs within the Lower Mogollon Transition Common Resource Area (CRA 38-1). The nearest climate station is in Superior, AZ, which receives a slightly higher amount of rainfall than the Battle Axe since it is higher in elevation, and averages 18.35" of annual precipitation (~40% summer, ~60% winter).

The Battle Axe Ranch (BLM allotment No. 6059; ASLD Lease No. 05-102690) is currently owned and operated by Dr. Wade C. Lueck. Mr. Lueck bought the ranch from Dutch Ortega and Steve Brophy in 2005. Other previous owners on the ranch include Jess & Shirley Aldridge and Bill Dunn. In the 1990s, the ranch was heavily stocked. The current owners have taken a strategic plan to rest the vegetation by only stocking a small number of cattle while focusing on developing rangeland improvements to increase production and livestock management of the ranch. The Battle Axe Ranch is currently operated as a cow-calf beef cattle operation. Stock cows consist of British based genetics (Angus, Hereford, etc.) and are bred to Black Angus and Brangus bulls. The Battle Axe strives to produce gentle cattle which are well adapted to the region and are desirable in the marketplace.

Part of the ranch contains the White Canyon Wilderness Area. The wilderness area includes the southeast portion of the Mineral Mountains. Recreational activities such as hiking, rock climbing, hunting, Off-Highway Vehicle (OHV) use and photography draw people to the area. Also, the Arizona Trail passes through the Battle Axe Ranch.

Not only is the Battle Axe Ranch rich with scenic beauty and recreational opportunities, it is also home to a herd of Desert Bighorn sheep introduced in 2003 and additional numbers were added in 2007 and 2010 by the Arizona Game & Fish Department.

Coordinated Plan Participants

Wade Lueck; Owner & Operator
Natural Resources Conservation Service; Tucson Field Office
Arizona State Land Department
Winkelman Natural Resources Conservation District
Arizona Game & Fish Department; Mesa Office, Region 5

Land Status

| | |
|--------------------|--------------|
| Private Controlled | 34 acres |
| Private Leased | 1,397 acres |
| BLM | 15,148 acres |
| State Land | 2,994 acres |

Total 19,573 acres

Goals

- Maintain or improve species composition, diversity and structure for the desired plant communities needed to protect the land and support the planned land use.
- Enhance vegetative cover to improve water quality, prevent accelerated erosion, prevent excess runoff and provide adequate cover for watershed stability and habitat.
- Manage for the long-term health and diversity of wildlife populations.
- Maintain a self sustaining economically feasible ranching operation.

Objectives

- Implement a prescribed grazing plan in 2015 which provides grazing and rest in each pasture that will allow grazed plants to re-grow, regain vigor, produce seed and establish new plants when climatic conditions are favorable.
- Install and maintain fencing and water developments as needed to control timing and distribution of livestock grazing. See Appendix A for the Planned Schedule of Improvements.
- Implement management of invasive and undesirable species in high priority areas.
- Establish at least one permanent monitoring site in each pasture to monitor plant cover to determine whether plant community goals are being achieved.
- Ensure that all improvements are done in a manner that is consistent with the needs of the numerous and diverse wildlife species found within the allotment and that any improvements made using HPC funds maintain water year round.

Benchmark Conditions

Benchmark conditions for the ranch were evaluated by the Natural Resources Conservation Service (NRCS). NRCS inventories and assesses natural resources based on 6 categories; Soil, Water, Air, Plants, Animals and Human (SWAPA+H). Inventory data were gathered at 8 locations on the ranch in 2006. At each location plant species composition and production in pounds/acre were determined. This information was used to calculate a similarity index comparing present vegetation on the site to reference conditions. Generally a similarity index of <60% is considered to indicate a resource concern for plant productivity and composition. The similarity indices for each of the 8 inventory sites can be found in Appendix D. The soils, vegetation and land type (for example, slope, aspect, upland vs. bottom) information gathered during the inventory was used to make an ecological site map for the ranch. At each location, range health was evaluated using a subjective rating of 17 indicators associated with the soil stability, hydrologic function and biotic integrity of the present situation compared to reference conditions for the site. Each indicator is rated as having none-slight, slight to moderate, moderate, moderate to extreme, or extreme departure from what is expected for the site. Ratings of moderate or more departure are considered to indicate resource concerns for that attribute. The range health ratings for the 8 inventory sites can be found in Appendix D.

The resource assessments made by the NRCS and other observations were used to identify the following resource concerns:

- Soil Erosion-Road, Roadsides and Construction Areas – High levels of recreation on motorized vehicles also contributes to erosion in some areas. Range Health ratings of Moderate or higher departures
- Soil Condition, Rangeland Site Stability – extended drought has resulted in high amounts of bare ground increasing sheet flow and gully erosion
- Water Quality – Excessive Suspended Sediment and Turbidity in Surface Water – erosion is occurring on areas that can contribute runoff to water bodies of concern
- Water Quantity, Rangeland Hydrologic Cycle – Range Health ratings of Moderate or higher departures
- Plant Condition – All sites have a Similarity Index score of less than 60% (see Appendix D for ratings).
- Domestic Animals, Inadequate Stock Water – Inadequate reliable water in each pasture to support sound grazing management for a sustainable number of livestock.

The reasons for observed resource concerns are several. First, this area, as in much of Arizona, was heavily grazed year-round from the late-1800s until the mid-1900s. This overgrazing was largely the result of the absence of defined grazing rights which did not provide any incentive for conservative, controlled grazing. This heavy grazing was not only associated with commercial livestock operations but also to homesteaders, miners, woodcutters and other settlers that had cattle, sheep, goats, horses and donkeys.

A lack of infrastructure and improvements on the ranch has greatly impacted the ability to manage livestock and rangeland resources. Prior to 2009 there was no interior fencing on the ranch. The only fencing was the boundary fence and the fence along Highway 177 which split the ranch disproportionately, with only about 10% of the lands north of the highway and the remaining portion of the ranch south of the highway. In 2009 Wade Lueck built a fence across the large, southern portion of the ranch, splitting the pasture in-two at approximately 9,000 acres each. Also, there were few permanent water developments on the ranch prior to Wade Lueck's ownership. There are 10 dirt tanks on the ranch that used to hold water seasonally, but most of them have silted in. There is an artesian well in Walnut Canyon that has always been a strong source of water on the ranch. There are also 9 springs on the ranch: two in Hell's Canyon, Johnny Longwater Spring, Sheep Spring, Tomell Spring, Martinez Spring, Bluff Spring, Walnut Spring along the highway and the Rock Tank Spring near Sleeping Beauty Mountain north of the highway. There are old drinkers and short pipelines coming off Hell's Canyon, Johnny Longwater and Rock Tank Springs. The southern boundary of the ranch is the Gila River. Historically livestock have used the river for watering and grazing along its banks. In more recent years fencing has been installed along the river to keep cattle from consistently using the river to protect habitat for threatened and endangered species. The few water sources and the seasonally limited availability of the water historically created areas of high use as cattle concentrated around the existing water sources.

Also, long term drought in the region has greatly affected the potential of the rangeland. This has had a major impact on both soil and vegetation resulting in accelerated erosion. According to the U.S. Drought Monitor "ongoing drought conditions are impacting native vegetation across the Sonoran Desert in southern Arizona (Associated Press, June 17). Many desert-adapted plant species are suffering under the current drought, as are prickly pear, saguaro cacti, and other succulent plants."

Other high use areas on the ranch occur at points along the access routes to the ranch where recreationalists are known

to camp and/or park their vehicles. With increasing growth in the Phoenix Metropolitan area over the past couple of decades the influx of public use has greatly increased. Also, with the escalating use of Off Highway Vehicles the impact on the land has changed and spread due to accessibility becoming easier and faster.

Another resource issue occurring on the ranch are several invasive and undesirable species. For example, salt cedar, an invasive species, and cholla and prickly pear have become well-established on the ranch. Buffelgrass and yellow star thistle have been found along Highway 177 within a few miles of the ranch. Spot treatments in certain areas would be beneficial to improving the impacted areas. Treatments on areas with undesirable species would be to decrease the over abundance of these species to get the composition percentages closer to those determined in the Historic Cimac Plant Community listed in the ecological site description.

Range Improvements

Existing Range Improvements

Current range improvements consist of 3 wells, 7 springs, watering facilities, 6 corrals, 10 dirt stock tanks, fencelines, pipelines and trails. All current improvements are listed in Appendix A.

Proposed Range Improvements

Planned improvements consist of fencelines, pipelines with watering facilities, spring developments, wells and solar pumping plants throughout the ranch. Fencing would aid grazing management to more evenly disperse use to improve upland health condition. Also, by developing and spreading out the water sources on the ranch it would improve grazing management and resource management. This improved ranch management would also increase the value of the area to recreationalists through additional wildlife viewing and hunting opportunities. Furthermore, taking the historical grazing pressure off the existing water sources in the drainages and along the river would help in the improvement and recovery of the proper functioning conditions of the riparian areas. The Planned Schedule of Improvements is listed in Appendix A and each improvement is given a priority rating of 1, 2 or 3 for order of implementation.

Alternatives

- Spot treatments of invasive and undesirable species. For example, brush management to treat affected areas of cholla, prickly pear and/or salt cedar.
- Install a spring box in Hell's Canyon
- Run pipeline, with storage tanks and troughs to disperse water from Hell's Canyon Spring to the east down – canyon.
- Install wildlife troughs with the livestock troughs along the Hell's Canyon pipeline to be fenced off for wildlife use

Grazing Management

Numbers and Season of Use

The permitted number of livestock on the Battle Axe Ranch is 210 Animal Units (AUs), or 2522 Animal Unit Months (AUMs). A breakdown by land status is as follows:

| STATE | 51 | AU's | 614 | AUM's |
|--|------------|-------------|-------------|--------------|
| BLM | 113 | AU's | 1357 | AUM's |
| Bureau of Reclamation (Administered by BLM) | 5 | AU's | 62 | AUM's |
| BIA San Carlos Irrigation District (Administered by BLM) | 12 | AU's | 141 | AUM's |
| Private Land Controlled & Leased | 29 | AU's | 348 | AUM's |
| Total | 210 | AU's | 2522 | AUM's |

Current Grazing System

A year-long continuous grazing system has been employed for many years on the Battle Axe Ranch. In 2009 a cross fence was constructed, running east from the Copper Butte Corrals. This new fence allowed for the main pasture, Pasture #2, to be divided into two pastures, North and South. This has aided in herd management and improved livestock productivity. Distribution of salt/supplement and development of water sources are also vital in more evenly utilizing the ranch.

Since the main feed source for cattle on the ranch is palatable browse (shrubs), grazing management attempts to target the spring growing season (March-May) as the critical season for rest. During the remainder of the year, livestock can be distributed throughout the ranch, but during this spring period, pastures should be alternately rested.

Planned Grazing System

The Coordinated Resource Management team for the Battle Axe Ranch will provide input for a planned grazing schedule. The planned grazing system will take season of use into account. At least one pasture will be rested each year during the spring growing season. Season of use will also be affected by the availability of water and completion of the planned improvements. As with any plan it is necessary to keep track of what the management is doing in order to realize whether or not it is achieving the intended consequences.

Flexibility

Due to the annual variability in forage production, resulting from yearly variability in climate, it may be necessary to move livestock earlier or later than planned. Adaptive management provides the flexibility to adjust livestock numbers and timing of grazing so that use is consistent with current forage productivity and is meeting management objectives. Under the proposed adaptive management strategy, the number of livestock, specific dates for grazing, class of animal and modifications in pasture rotations may be changed as necessary and appropriate, based on the implementation of improvements and the monitoring data. It is intended that pastures will be grazed at varying times during the year to limit repeated growing season use of a pasture as much as possible. All plan participants involved in this plan agree to work together to ensure the best available management strategy. The rancher will keep records, such as "in and out" dates of a pasture and number of livestock and provide actual use information to the participating agencies each year upon request.

Saltng / Supplemental Feeding

Salt blocks and supplement (i.e. protein concentrate tubs) will be dispersed throughout the pastures to encourage cattle to more evenly utilize a pasture. This helps minimize the effects of concentrated livestock use in one particular area, reducing erosion and the potential to promote invasive plant species.

Monitoring Plan

General

Monitoring can be used to evaluate the effects of livestock use on the rangeland resource and to aid in management decisions necessary to maintain or improve rangeland condition.

Vegetative Information

The Battle Axe Ranch lies within the Common Resource Area (CRA) of 3B-1 Lower Mogolon Transition. Elevations range from 3,000 to 4,500 feet and precipitation averages 12 to 16 inches per year. The soil temperature regime is thermic and the soil moisture regime is ustic aridic. This unit occurs within the Transition Zone Physiographic Province and is characterized by canyons and structural troughs or valleys. Igneous, metamorphic and sedimentary rock classes occur on rough mountainous terrain in association with less extensive sediment filled valleys exhibiting little integrated drainage.

Ecological sites within this CRA are Granitic Hills, Granitic Uplands, Volcanic Hills, Limestone Hills, Tuff Hills and Loamy Bottom. An Ecological Site Legend is attached in Appendix C and an Ecological Site map is included.

Key browse species include jojoba (*Symmondsia chinensis*), false mesquite (*Calliandra eriophylla*), range ratany (*Kramena parviflora*), Flat-top buckwheat (*Eriogonum parviflora*), shrubby buckwheat (*Eriogonum sp.*), twinberry (*Menodora scabra*), and slender janusia (*Janusia gracilis*). These species were chosen because they are fairly abundant throughout the ranch and are nutritious and well-liked by cattle and wildlife.

Perennial grass species were not chosen as key species since they occur sparsely throughout the ranch, with the exception of the Limestone Hills ecological site north of the highway that has not been used by livestock for years due to inaccessibility and/or lack of water. Grass species that do occur include purple three-awn (*Aristida purpurea var. purpurea*), sideoats grama (*Bouteloua curtipendula*), and bush muhly (*Muhlenbergia porteri*), while on the Limestone Hills blue three-awn (*Aristida purpurea var. nealleyi*), slim tridens (*Tridens muticus*) and black grama (*Bouteloua eriopoda*) also occur.

Inventory

Eight inventory transects were run to collect baseline vegetation composition and production data. Data collected on each transect include production, composition, similarity indices and rangeland health. Inventory points are distinct from Key Areas and are typically not used for permanent monitoring. The Double Sampling method was used to collect data for each transect and production was clipped and weighed. At least one site was located within each ecological site. A description of the current state of each ecological site is listed in Appendix D. Locations for the inventory sites are as follows.

| Inventory Points | Ecological Site | Section | Township & Range | UTM's |
|------------------|------------------|-------------------|------------------|-------------------|
| | | | | (NAD 83, Zone 12) |
| T-1 | Granitic Hills | NE¼, NW¼, Sec. 17 | T3S, R13E | 0495793, 3670601 |
| T-2 | Granitic Uplands | S¼, SW¼, Sec. 17 | T3S, R13E | 0495710, 3669321 |
| T-3 | Granitic Uplands | NW¼, NE¼, Sec. 19 | T3S, R13E | 0494896, 3669283 |
| T-4 | Volcanic Hills | SW¼, SW¼, Sec. 20 | T3S, R13E | 0495416, 3668051 |
| T-5 | Granitic Hills | SE¼, SW¼, Sec. 5 | T3S, R13E | 0495921, 3672638 |
| T-6 | Limestone Hills | NE¼, NE¼, Sec. 8 | T3S, R13E | 0494957, 3673793 |
| T-7 | Tuff Hills | NW¼, NE¼, Sec. 30 | T3S, R13E | 0494549, 3667716 |
| T-8 | Loamy Bottom | NW¼, SW¼, Sec. 29 | T3S, R13E | 0495698, 3666596 |

Key Areas

Permanent transects will be established on State Trust and BLM lands. Two transects, KA-1 and KA-2, have been established. At least two more Key Areas need to be identified and established: one in the Burnt Forest Pasture, one further south in the South Pasture on State Trust land. Another transect may be established to monitor the Critical Area in the bottom of Walnut Canyon. There will be at least one transect per pasture. Transects shall be placed to reflect livestock management and should be placed on major ecological sites. Monitoring data will be used in part to guide the management of the ranch. New Key Areas can be established or abandoned as deemed necessary. Key Area locations will be decided in coordination with the rancher/lessee and the land management agencies. Participants in this coordinated resource management plan agree to participate in annual monitoring on the ranch. An Ecological Site Map with site specific descriptions can be found in the Appendix C.

Key Areas:

| | | | | |
|------|---------------|------------------|-------------|-----------------|
| KA 1 | North Pasture | 0498105, 3670645 | Elev. 3025' | Granitic Upland |
| KA 2 | South Pasture | 0494559, 3688371 | Elev. 2550' | Granitic Hills |

Methods and Responsibilities

1. Actual Use
The lessee will record actual use data throughout the year showing when, where, and how many livestock used the ranch during the grazing year.
2. Climate
Rainfall gauges should be installed on the ranch, and rainfall records should be kept by the producer.
3. Utilization
Techniques to measure utilization, designed primarily to measure residual biomass of perennial grasses, are not particularly useful on this ranch because of the lack of perennial grasses and dominance of shrubs. Belt utilization transects for measuring utilization can be run when the line-intercept method is used.
4. Cover
The Line-Intercept Method of estimating canopy cover is a measure of shrub vigor, productivity and utilization by livestock. This method has not yet been run on the established transects, but is proposed for key areas throughout the ranch.
5. Repeat Photography
Photographs will be taken at each trend location to qualitatively assess changes in rangeland trend.

Monitoring data will be collected by NRCS, BLM, ASLD personnel and the producer.

Timetable for Data Collection

Data collection is planned to occur every fall for the 1st three years after a transect is established and then every 2 to 5 years thereafter or more regularly as deemed necessary. The first three years of data collected on a site will serve as a base line for future trend analysis.

Evaluation and Revision

A review of the plan will be conducted each year in cooperation with the producer. Data collected from the monitoring sites will be used to aid in management decisions.

Plan Approval

We, the undersigned, have participated in the development of the Coordinated Resource Management plan, concur with the plan, and will act to implement it to the best of our ability.

Accepted by:

| | |
|---|---------------------------|
|  Wade Lueck, Owner & Operator | <u>11/16/2012</u> Date |
|  Arizona State Land Department | <u>11/13/2012</u> Date |
|  Natural Resources Conservation Service; Tucson Area Office | <u>8/2/12</u> Date |
|  Winkelman Natural Resources Conservation District | <u>1/4/13</u> Date |
|  Arizona Game & Fish Department; Mesa Office, Region 6 | <u>12/6/2012</u> Date |

(Appendices and maps attached)

RC -
11-29-12
1

APPENDIX A

Existing Range Improvements

Wells

| | | |
|---|------|------------------------|
| 1 | Well | T3S, R13E, Sec 19 NWNW |
| 2 | Well | T3S, R13E, Sec 20 NENW |
| 3 | Well | T3S, R13E, Sec. 8 SWSW |

Storage Tanks

| | | |
|---|--------------|------------------------|
| 1 | Tank | T3S, R13E, Sec 7 SENW |
| 2 | Storage tank | T3S, R13E, Sec. 8 SWSW |

Troughs

| | | |
|-------|---------|--|
| 1 | Troughs | T3S, R13E, Sec 7 |
| 2 | Trough | T3S, R13E, Sec 5 SESW |
| 3 & 4 | Troughs | T3S, R13E, Sec. 17 |
| 5 | Trough | T3S, R13E, Sec. 20 NW |
| 6 & 7 | Troughs | T3S, R13E, Sec. 19 SENE (@ Steel Corrales) |

Dirt Tanks

| | | |
|----|-----------------|------------------------|
| 1 | Dirt stock tank | T3S, R13E, Sec 6 SWNE |
| 2 | Dirt stock tank | T3S, R13E, Sec 17 SESW |
| 3 | Dirt stock tank | T3S, R13E, Sec 19 NENW |
| 4 | Dirt stock tank | T3S, R13E, Sec 6 NESE |
| 5 | Dirt stock tank | T3S, R13E, Sec 18 NWSE |
| 6 | Dirt stock tank | T3S, R13E, Sec 16 |
| 7 | Dirt stock tank | T3S, R13E, Sec 32 |
| 8 | Dirt stock tank | T3S, R13E, Sec 33 |
| 9 | Dirt stock tank | T3S, R13E, Sec 6 SENW |
| 10 | Dirt stock tank | T3S, R13E, Sec 8 |

Springs

| | | |
|---|-------------------------|--------------------------|
| 1 | Sheep Spring P/L | T3S, R12E, Sec 11 NENE |
| 2 | Johnny Longwater Spring | T3S, R13E, Sec 7 SENW |
| 3 | Tornell Spring | T3S, R12E, Sec 11 SENESE |
| 4 | Martinez Spring | T3S, R13S, Sec 33 |
| 5 | Walnut Spring w/box | T3S, R13E, Sec 5 SWSW |
| 6 | Bluff Spring | T3S, R13E, Sec 30 NESE |
| 7 | Artesian spring | T3S, R12E, Sec 24 SWNW |
| 8 | Hells Canyon | T3S, R12E, Sec 15 NENW |
| 9 | Rock Tank Spring | T3S, R13E, Sec 5 NENE |

Pipelines

| | | |
|---|----------|-------------------------------|
| 1 | Pipeline | T3S, R13E, Sec 5 SWSW |
| 2 | Pipeline | T3S, R13E, Sec 7 SENW |
| 3 | Pipeline | T3S, R13E, Sec. 5, 8 |
| 4 | Pipeline | T3S, R13E, Sec. 8, 17, 19, 20 |
| 5 | Pipeline | T3S, R12E, Sec 15-16 |

Fencelines

| | | |
|---|-----------------|----------------------------|
| 1 | Fence | T3S, R12E, N of Gila River |
| 2 | Fence | T4S, R12E, N of Gila River |
| 3 | Fence | T3S, R13E, Sec 7 |
| 4 | Fence | T3S, R13E, Sec. 19, 20, 21 |
| 5 | Fence (1.75 mi) | T3S, R13E, Sec 9 |
| 6 | Fence (0.25 mi) | T3S, R12E, Sec 36 |

Existing Range Improvements (Continued)

Corrals

| | | |
|---|--------------------------------------|------------------------|
| 1 | Copper Butte Corrals (Steel Corrals) | T3S, R13E, Sec 19 SENE |
| 2 | HQ Corrals | T3S, R13E, Sec 8 SWSW |
| 3 | Highway (Burnt Forest) Corrals | T3S, R13E, Sec 5 SESW |
| 4 | Hells Canyon | T3S, R12E, Sec 15 |
| 5 | Johnny Longwater | T3S, R13E, Sec 12 |
| 6 | Corral | T3S, R13E, Sec 11 |

Trails

| | | |
|---|---------------------|--|
| 1 | Hells Canyon Trail | T3S, R12E, Sec 12 & 23 |
| 2 | Arizona Trail | T4S R12E Sec 1, 2; T4S R13E Sec 3, 4, 5, 6 |
| 3 | Hell's Canyon P/L** | T3S, R12E, Sec 15 & 16 |

(** Listed in BLM lease, but legal description extends beyond lease boundaries)

Planned Schedule of Improvements

| Priority | Location | Improvement | Elevation | GPS Coordinates (NAD 83) | Comments | Ownership |
|----------|----------|--|-----------|-----------------------------|---------------------|-------------------------|
| 1 | Walnut | Artesian | 2048 | 0492485, 3668720 | | Private |
| 1 | Canyon | Water Storage | 2023 | 0492459, 3668671 | 20,000 gal. Storage | Private |
| 1 | | Walnut Trough #1 | 2023 | 0492459, 3668671 | 1,500 GL Trough | Private |
| 1 | | Pipeline Artesian to end of Private | | End at: 0492673, 3667797 | 3,400 feet | Private |
| 3 | | Pipeline from start of BLM to trough #4 | | | 13,000 feet | BLM & State |
| 3 | | *Walnut Trough #4** | 1707 | 0491760, 3664505 | 1,500 GL Trough | State |
| 1 | Bluff | Solar Well | 2200 | 0494901, 3667151 | 800 ft. deep well | Private |
| 1 | Spring | Water Storage | 2220 | 0494901, 3667151 | 20,000 gal. | Private |
| 1 | | *Trough #1 | 2200 | 0494901, 3667151 | 1,500 gal. | Private |
| 1 | | *Trough #2 | 1983 | 0494133, 3666695 | 1,500 gal. | Private |
| 1 | | Pipeline from well to Trough #2 | | | 3,500 feet | Private |
| 3 | | Pipeline from trough #2 to #4 | | | 8,500 feet | Private, BLM & State |
| 3 | | *Trough #3** | 1877 | 0493666, 3665543 | 1,500 gal. | State |
| 3 | | *Trough #4** | 1785 | 0493684, 3664609 | 1,500 gal. | State |

**Walnut Trough #4 and Bluff Troughs #3 & #4 are a 3rd Priority because the pipeline that will supply the water has to cross BLM land. Projects are proposed until a CRMP and NEPA has been completed with BLM.

*Each location with a planned livestock trough will have a paired drinker for wildlife use. Fencing around each wildlife drinker is an option

Planned Schedule of Improvements (Continued)

| Priority | Location | Improvement | Elevation | GPS Coordinates (NAD 83) | Comments | Ownership |
|----------|-----------|-----------------------------------|-----------|-----------------------------|-------------------------|-----------|
| 2 | Johnny | JL Canyon Fence | | | | State |
| 2 | Longwater | East End | 3046 | 0494887, 3671797 | | State |
| 2 | | West End | 3020 | 0493853, 3671187 | | State |
| 2 | Burnt | Upper Spring | 3500 | 0496577, 3673874 | | State |
| 2 | Forest | Storage Tank | 3490 | 0496577, 3673874 | 1,000 gal. Storage Tank | State |
| 2 | | *Trough #1 | 3485 | 0496577, 3673874 | 1,500 gal. Trough | State |
| 2 | | Water Storage | 3314 | 0496489, 3673216 | 10,000 gal. Storage | State |
| 2 | | *Trough #2 | 3314 | 0496489, 3673216 | 1,500 gal. Trough | State |
| 2 | | Pipeline from spring to trough #2 | | | 3,500 feet | State |
| 1 | | Solar Well | 2995 | 0495889, 3672404 | 800 ft. deep well | Private |

*Each location with a planned livestock trough will have a paired drinker for wildlife use. Fencing around each wildlife drinker is an option.

**Battle Axe Ranch
 Conservation Plan Map**

