

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

ENVIRONMENTAL ASSESSMENT

EA NUMBER: DOI-BLM-CO-N010-2010-0106

CASEFILE/ALLOTMENT NUMBER: 0503194/04175

PROJECT NAME: Renewal and issuance of a grazing lease on the Creek Ranch Allotment #04175.

LEGAL DESCRIPTION: see Allotment Map, Attachment #1a

Creek Ranch Allotment #04175 T5N R85W, parts of Sec. 19, 20, 30
488 acres BLM

APPLICANT: Lessee

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

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

Date Approved: April 26, 1989

Results: The Proposed Action is consistent with the Little Snake Resource Management Plan, Record of Decision, Livestock Grazing Management objective to improve range conditions for both wildlife and livestock through proper utilization of key forage plants and adjusting livestock stocking rates as a result of vegetation studies.

The Proposed Action is located within Management Unit 1, Eastern Yampa River. The Proposed Action is compatible with the management objective for this unit, which is to provide for the development of coal, oil, and gas resources. The Proposed Action would not conflict with the development of these resources.

NEED FOR PROPOSED ACTION:

BLM lease #0503194, which authorizes livestock grazing on the Creek Ranch Allotment #04175 was due to expire on February 28, 2010. The lease was extended with the existing terms and conditions until February 28, 2011. This lease is subject to renewal at the discretion of the

Secretary of the Interior, who delegated the authority to BLM, for a period of up to ten years. The U.S. Bureau of Land Management has the authority to renew the livestock grazing permit/lease consistent with the provisions of the *Taylor Grazing Act*, *Public Rangelands Improvement Act*, *Federal Land Policy and Management Act*, and Little Snake Field Office's *Resource Management Plan/Environmental Impact Statement*. This Plan/EIS has been amended by *Standards for Public Land Health in the State of Colorado*.

The southern parcel of the Creek Ranch Allotment #04175 (previously the Homestead Ditch Allotment #04176) has been a vacant allotment available for grazing use by a qualified applicant. The applicant owns private land that qualifies as base property for this allotment under 43 CFR 4110.2-1 (a) and (e). This lease is subject to issuance at the discretion of the Secretary of the Interior, who delegated the authority to BLM, for a period of up to ten years. The U.S. Bureau of Land Management has the authority to renew the livestock grazing permit/lease consistent with the provisions of the *Taylor Grazing Act*, *Public Rangelands Improvement Act*, *Federal Land Policy and Management Act*, and Little Snake Field Office's *Resource Management Plan/Environmental Impact Statement*. This Plan/EIS has been amended by *Standards for Public Land Health in the State of Colorado*.

The following Environmental Assessment will analyze the impacts of livestock grazing on public land managed by the BLM. The analysis will recommend terms and conditions to the permit/lease which improve or maintain public land health. The Proposed Action will be assessed for meeting land health standards.

In order to graze livestock on public land, the livestock producer (permittee/lessee) must hold a grazing permit/lease. The grazing lessee has a preference right to receive the lease if grazing is to occur. The land use plan allows grazing to occur on this parcel. This EA will be a site specific look to determine if grazing should be authorized as provided for in the land use plan and to identify the conditions under which it can be permitted.

PUBLIC SCOPING PROCESS:

The Little Snake Field Office sent out a notice of availability of vacant grazing allotments on January 21, 2009 to interested and otherwise qualified individuals. A notice was also posted in the *Craig Daily Press* and the *Steamboat Pilot* on January 31 and February 7, 2009 to solicit interested parties to apply for authorizations to graze these allotments.

Additionally, the Little Snake Field Office sent out a Notice of Public Scoping in December of 2008, to determine the level of public interest, concern and resource conditions on the grazing permits and leases that were up for renewal in FY 2010. A Notice of Public Scoping was posted on the Internet, at the Colorado BLM Home Page, asking for public input on permit/lease renewals. Individual letters were sent to the affected permittees/lessees, informing them their permit/lease was up for renewal and requesting any information they wanted included in or taken into consideration during the renewal process. The issuance of a grazing permit for these allotments has been carefully analyzed within the scope of the specific action being taken, resource issues or concerns, and public input received.

BACKGROUND:

The Creek Ranch Allotment is located between Steamboat Springs, Colorado and Oak Creek, Colorado. It is adjacent to Trout Creek between the convergence of RCR 29 and RCR 179. Elevations within the allotment range between 6,870’ and 7,480’. A portion of Trout Creek passes through the parcel with the remaining area of the allotment along two ridges and a drainage.

The majority of the allotment has been authorized for livestock grazing to the current lessee for about 10 years. This authorization approved cattle grazing from 6/01 to 9/07 for a total of 104 AUMs. This was leased under the #04175 Ditch #4 Sec. 15 and #04177 Co. Rd. #179 allotments.

The additional southern parcel (#04176 Homestead Ditch Allotment) has been vacant and was advertised for grazing availability in 2009. Two applicants applied for the preference at that time. It was awarded to this lessee to be managed in conjunction with the existing lease for the two adjacent allotments in a Decision issued in April 2010.

ADMINISTRATIVE ACTIONS

The #04175 Ditch #4 Sec. 15 Allotment, #04176 Homestead Ditch Allotment, and #04177 Co. Rd. #179 Allotment have been combined into one allotment renamed the Creek Ranch Allotment #04175. The allotment boundary has been adjusted to include only the BLM parcels. All acreages and AUMs have been adjusted accordingly. The lessee was given preference for the grazing lease on the #04176 allotment through a Decision issued in April 2010. These administrative actions will facilitate more efficient administration of the grazing lease.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Proposed Action

Renew and issue a grazing lease on the Creek Ranch Allotment #04157 to the lessee for a period of ten years, expiring February 28, 2020. This grazing lease would establish a preference tie to the qualifying base property owned by the Creek Ranch Owners Association. The lease would be issued with the following terms and conditions:

Allotment Name & Number	Livestock Number & Kind	Dates		%PL	AUMs
		Begin	End		
Creek Ranch #04175	50 Cattle	06/01	09/07	100	163
				<u>Unscheduled</u>	<u>2</u>
				Total	165

Special Terms and Conditions:

1. The lessee will be allowed 7 days of flexibility in use dates so long as total AUMs are not exceeded.

The above lease would be subject to the Standard and Common Terms and Conditions, see Attachment #2.

Range Improvement Projects

The lessee has proposed to construct and maintain fences within the allotment to facilitate management of livestock and forage. Attachment #1b shows current inventory status of fence lines within the allotment and outlines new construction. Construction of fences would include removal of brush from the area in a 30 ft. corridor where construction of fence would occur. The fence standards need to be both wildlife and livestock management friendly. Also, the fence construction in the area near Trout Creek needs to be appropriately constructed and maintained to withstand high water flow and floods.

Pasture fencing standards would be finalized at time of construction but may include the following two options or similar construction:

- 3-Wire standard fence construction (top two wires barbed, bottom wire smooth). Wire spacing at 16", 26", 38".
- High tensile fence construction (electric or non-electric) with 3 or 4 wires. Wire spacing for either option can be found in Attachment #3. Construction would use 6" wood line posts spaced ~30-35' or 1" fiberglass poles as stays with 50' between wood line posts. Top wire would be marked for visibility.

Additionally, two water projects are outlined on Attachment #1b. The southern water development site would be a hardened water gap along Trout Creek. Located where shown on Attachment #1, the gap would be an approximately 20' opening along a newly constructed fenceline. The access ramp area would be steeply sloped (~25%) and protected with large diameter (3'-4") rough rock to prevent erosion and cattle loafing. Photo 1 (below) shows an example water gap construction. Fencing would be similar to that shown in Photo 1 as described in the pole fence construction standards in Attachment #3. Attached flanks of the water gap riparian fencing should be extended to either side ~50' using similar post and rail construction and could then be converted to either standard 4-wire barbed (spacing listed in Attachment #3) or high tensile fencing.

Photo 1.



The second water development site would include establishing a solar water well and piping the water into a livestock tank. The area where the water well is drilled and the solar pumping equipment is constructed would be protected from livestock access by fencing panels. From this location a pipeline (~1 ¼" diameter) would be installed pumping the water into a livestock tank. The tank size would be 8-12 feet in diameter and may be a fiberglass, galvanized or rubber tire tank. The tank would be secured to the ground and the plumbing would be protected. Additional description and construction standards can be found in Attachment #3.

Prior to all project construction a detailed cooperative agreement would be signed and construction standards would be provided to the lessee. All range improvement projects located on BLM land would also have an archaeological survey completed. Construction of these projects would not occur from March 1 to June 30 to protect grouse that may be nesting in habitat on the allotment. Water and fencing projects would not be constructed from March 1 to June 30 to prevent disruption of nesting grouse species. To increase visibility and decrease collisions, the fences would be flagged or visibility markers would be used. Wooden stays should be used to ensure wire tautness and increase visibility in new fences.

No Action

This alternative would maintain the existing grazing lease. No new range improvements would be constructed.

Alternatives Considered but not Analyzed:

NEPA requires federal agencies to rigorously explore and evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). As also required by NEPA, the range of alternatives considered in detail includes only those alternative that would fulfill the purpose and need for the Proposed Action.

No Grazing Alternative

No livestock grazing would take place under this alternative.

This alternative is eliminated from detailed study because it is not a realistic, implementable alternative, nor does it meet the requirements of the Federal Land Policy and Management Act of 1976. When the RMP was approved, it was determined that livestock grazing was an appropriate use of this land. Eliminating grazing is not analyzed because no new issues or concerns have been identified that would require this action.

AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES/MITIGATION MEASURES

CRITICAL RESOURCES

AIR QUALITY

Affected Environment: There are five federal Class I areas within 100 kilometers of the Little Snake Resource Management Area (LSRMA) boundary, all of which occur in Colorado. There are

no federal Class I areas in Utah or Wyoming within 100 km of the LSRMA boundary. There are no non-attainment areas nearby that would be affected by either alternative.

Environmental Consequences, both alternatives: Activities associated with grazing that may affect air quality, namely dust and exhaust from ranch operation vehicles as well as dust from livestock hoof action, fall below EPA emission standards for the six criteria pollutants of concern (sulfur dioxide, nitrogen oxide, ground-level ozone, carbon monoxide, particulate matter [both PM2.5 and PM10], and lead). Furthermore, ranch operation and livestock activities are not a significant source of these pollutant emissions that do occur in Routt County. Impacts to air quality by either alternative are therefore considered negligible.

Mitigative Measures: None

Name of specialist and date: Emily Spencer, 6/28/10

Source: United States Environmental Protection Agency National Ambient Air Quality Standards:
<http://www.epa.gov/air/criteria.html>

AREA OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: Not present.

Environmental Consequences, both alternatives: Not applicable.

Mitigative Measures: Not applicable.

Name of specialist and date: Gina Robison, 6/30/10

CULTURAL RESOURCES

Affected Environment: Grazing authorization renewals are undertakings under Section 106 of the National Historic Preservation Act. During Section 106 review, a cultural resource assessment was completed for #04175 allotment on July 2, 2010 by Robyn Watkins Morris, Little Snake Field Office Archaeologist. The assessment followed the procedures and guidance outlined in the 1980 National Programmatic Agreement Regarding the Livestock Grazing and Range Improvement Program, IM-WO-99-039, IM-CO-99-007, IM-CO-99-019, and IM-CO-01-026. The results of the assessment are summarized in the table below. Copies of the cultural resource assessments are in the field office archaeology files.

Data developed here was taken from the cultural program project report files, site report files, and base maps kept at the Little Snake Field Office as well as from General Land Office (GLO) maps, BLM land patent records, An Overview of Prehistoric Cultural Resources Little Snake Resource Area, Northwestern Colorado, Bureau of Land Management Colorado, Cultural Resources Series, Number 20, and An Isolated Empire, A History of Northwestern Colorado, Bureau of Land Management Colorado, Cultural Resource Series, Number 2 and Appendix 21 of the Little Snake

Resource Management Plan and Environmental Impact Statement, Draft February 1986, Bureau of Land Management, Craig, Colorado District, Little Snake Resource Area.

The table below is based on the allotment specific analysis developed for the allotment in this EA. The table shows known cultural resources, eligible and need data, and those that are anticipated to be in the allotment.

Allotment Number	Acres Surveyed at a Class III Level	Acres NOT Surveyed at a Class III Level	Percent of Allotment Inventoried at a Class III Level	Eligible or Need Data Sites- Known in Allotment	Estimated Sites for the Allotment *(total number)	Estimated Eligible or Need Data Sites in the Allotment (number)
04175	340	488	70%	0	15	4

(Note *Estimates of site densities are based on known inventory data. Estimates should be accepted as minimum figures which may be revised upwards based on future inventory findings.)

Two cultural resource inventories have been previously conducted within the allotment resulting in the complete coverage inventory of 340 acres. No cultural resources were identified. There were no GLO plats available for this area.

Subsequent cultural resource inventory will be conducted in areas where livestock concentrate. Subsequent field inventory is to be completed within ten year period of the permit.

All proposed fences and water developments will have Class III survey prior to implementation. Any historic properties identified during those efforts will result in project redesign to avoid the site by 100m, mitigation in consultation with Colorado State Historic Preservation Office (SHPO), or abandonment of the project.

If historic properties are located during the subsequent field inventory, and BLM determines that grazing activities will adversely impact the properties, mitigation will be identified and implemented in consultation with the Colorado SHPO.

Environmental Consequences, both alternatives: The direct impacts that occur where livestock concentrate, during normal livestock grazing activity, include trampling, chiseling, and churning of site soils, cultural features, and cultural artifacts, artifact breakage, and impacts from standing, leaning, and rubbing against historic structures, above-ground cultural features, and rock art. Indirect impacts include soil erosion, gullyng, and increased potential for unlawful collection and vandalism. Continued livestock use in these concentration areas may cause substantial ground disturbance and cause irreversible adverse effects to historic properties.

Saltblock placement, which creates a concentration area, along roads or anywhere in the allotment would potentially impact historic properties if they are in proximity of the placement.

Standard Stipulations for cultural resources are included in Standard and Common Terms and Conditions (Attachment #2).

Environmental Consequences, Proposed Action: The proposed fence construction would aid in rotating animals to cause less impact to cultural resources from livestock use.

Mitigation Measures: None

Name of Specialist and date: Robyn Watkins Morris, 7/6/10

ENVIRONMENTAL JUSTICE

Affected Environment: The Proposed Action would be located in an area of residential development. Ranching is one of the primary economic activities.

Environmental Consequences, both alternatives: The Proposed Action would not directly affect the social, cultural or economic well-being and health of Native American, minority or low-income populations. The project area is remote and relatively isolated from population centers, local populations would not be affected by physical or socioeconomic impacts of the Proposed Action.

Mitigative Measures: None

Name of specialist and date: Barb Blackstun, 6/29/10

FLOOD PLAINS

Affected Environment: There are 100-year floodplains present on public lands along Trout Creek within the proposed project area. Flooding is the temporary inundation of an area caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. Flooding in the area along Trout Creek is considered to be "rare", which means that flooding is unlikely but possible under unusual weather conditions, or a 1 to 5% chance in any year.

Environmental Consequences, both alternatives: The Proposed Action includes fence construction and maintenance within the identified Trout Creek floodplain. Care would be taken to locate any new interior fence line outside of the floodplain or construct it (as well as the proposed water gap) in a manner so that it can withstand rare flood events. Boundary fence line repair/maintenance would also be constructed with the possibility of flooding in mind. The no action alternative includes no additional fence line construction or water development in floodplains and so there would be no threat to human safety, life, welfare and property under this alternative.

Mitigative Measures: None

Name of specialist and date: Emily Spencer, 6/28/10

Source: USDA-NRCS Soil Data Viewer version 5.2.0016: <http://soildataviewer.nrcs.usda.gov/>

INVASIVE, NONNATIVE SPECIES

Affected Environment: Invasive species and noxious weeds occur within the affected area. Downy brome (cheatgrass), yellow alyssum, blue mustard and other annual weeds are common along roadsides and on other disturbed areas. Canada thistle and several species of biennial thistles are known to occur in this area. Hound's tongue, leafy spurge and hoary cress (whitetop) can also be found in the vicinity of the proposed project. Other species of noxious weeds could be introduced by vehicle traffic, livestock and wildlife. Additionally, the BLM coordinates with Routt County's Cooperative Weed Management program and the Routt County Weed Department to control noxious weeds on public lands. Principals of Integrated Pest Management are employed to control noxious weeds on public lands in the Little Snake Field Office.

Environmental Consequences, both alternatives: The impact of invasive or noxious weed establishment is very similar under either alternative. Vehicular access to public lands for dispersed recreation, hunting, grazing operations, livestock and wildlife movement, as well as wind and water, can cause weeds to spread into new areas. Surface disturbance from livestock concentration and human activities associated with grazing operations can also increase weed presence. The largest concern in the allotment would be for biennial and perennial noxious weeds to establish and not be detected. Once an infestation is detected it could be controlled with various IWM techniques. Land practices and land uses by the livestock operator and their weed control efforts and awareness would largely determine the identification and potential occurrence of weeds within the allotment.

Environmental Consequences, Proposed Action: The construction of a fenceline and development of the two water structures would provide a period of opportunity for invasive weed species to establish in disturbed areas. Existing healthy plant communities would mitigate this invasion as they re-establish and compete with the invasive species. The infestation period would be highest following construction (2-3 years) and then decrease as the area re-vegetates with desirable species. Overall, potential negative impacts would be short term.

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 6/28/10

MIGRATORY BIRDS

Affected Environment: Plant communities in the Creek Ranch Allotment are comprised of mixed mountain shrublands with serviceberry, snowberry, oakbrush and sagebrush. A healthy

understory of native grasses and forbs is also present. A small amount of riparian habitat is located along Trout Creek. A variety of migratory birds may utilize these habitats during the nesting period (May through July) or during spring and fall migrations. Virginia's warbler, dusky flycatcher and orange-crowned warbler potentially nest on the allotment. The allotment does not provide important habitat for any species listed on USFWS' Birds of Conservation Concern List.

Environmental Consequences, Proposed Action: Under this alternative, grazing would coincide with the migratory bird nesting season. Although this schedule encompasses much of the growing season, the allotment does receive some deferment during the early spring. Existing and new cross fencing would also allow cattle to be rotated through pastures, providing for additional growing season rest throughout the allotment.

The proposed construction of water and fence projects would have minimal impacts to migratory birds. Nesting attempts may be disrupted and some nests may be accidentally destroyed if any new fencing was constructed during the breeding season (May – July). As this would only impact a small area of habitat, potential for impacts would remain low. Once brush beating the fence line is complete, there would be no further potential to interfere materially with nest substrate. An additional water source would help distribute livestock on the allotment. Habitat in the immediate vicinity of the well and tank would be degraded by livestock congregation, however, this would not affect the productivity of the surrounding habitat.

Environmental Consequences, No Action Alternative: This alternative would allow continued livestock grazing without potential benefits of the range improvements. Migratory bird habitat would be subject to livestock foraging and traveling through. Overall this alternative would not have a significant change in affect of migratory birds.

Mitigative Measures: None

Name of specialist and date: Desa Ausmus, 7/06/10

NATIVE AMERICAN RELIGIOUS CONCERNS

A letter was sent to the Eastern Shoshone, Uinta and Ouray Tribal Council, Southern Ute Tribal Council, Ute Mountain Ute Tribal Council on May 26, 2009. The letter listed the FY2010 projects that the BLM would notify them on and projects that would not require notification. A followup phone call was performed on July 26, 2009. No comments were received (Letter on file at the Little Snake Field Office). This project requires no additional notification.

Name of specialist and date: Robyn Watkins Morris, 7/6/2010

PRIME & UNIQUE FARMLANDS

Affected Environment: No federally designated Prime and/or Unique Farmlands are present on public lands within the allotment.

Environmental Consequences, both alternatives: None

Mitigation Measures: None

Name of specialist and date: Emily Spencer, 6/28/10

T&E AND SENSITIVE ANIMALS

Affected Environment: There are no ESA listed or proposed species that inhabit or derive important benefit from habitats in the general area. Critical habitat for the razorback sucker, Colorado pikeminnow, bonytail chub and humpback chub occurs downstream from the Creek Ranch Allotment.

The allotment also provides habitat for Columbian sharp-tailed grouse, a BLM sensitive species. Mixed mountain shrublands on the allotment are classified as both nesting and winter habitat by the Colorado Division of Wildlife. There are three leks to the west of the allotment, but no leks are located within the boundary of the Creek Ranch Allotment.

Environmental Consequences, Proposed Action:

Big river fish

Livestock grazing and the proposed fences and vegetation treatments would have “No Effect” to razorback sucker, Colorado pikeminnow, bonytail chub or humpback chub. Impacts to these fish would be from small water depletions caused by water developments.

In July 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addresses water depleting activities in the Colorado River Basin. In response to BLM’s PBA, the FWS issued a Programmatic Biological Opinion (PBO)(#ES/GJ-6-CO-08-F-0010) on February 25, 2009, which determined that water depletions from the Colorado River Basin resulting from BLM actions described in the PBO are not likely to jeopardize the continued existence of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker or result in the destruction or adverse modification of their critical habitat. The PBO addresses internal and external BLM projects including impoundments, diversions, water wells, pipelines and spring developments. The FWS determined that projects that fit under the umbrella of the PBA would avoid the likelihood of jeopardy and/or adverse modification of critical habitat for depletion impacts to the Upper Colorado River Basin if they deplete relatively small amounts of water (less than 100 AF) and BLM makes a one-time contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in the amount equal to the average annual acre-feet depleted by each project. The PBO instructed BLM to make an annual payment to the National Fish and Wildlife Foundation (NFWF) to cover all BLM authorized actions that result in water depletions.

The water project addressed in this EA would be entered into the LSFO’s water depletion log which will be submitted to the Colorado State Office at the end of the Fiscal Year. The CSO is

responsible for paying depletion fees based on the annual statewide total.

Columbian sharp-tailed grouse

The grazing authorization in the Proposed Action could potentially incorporate rest, rotation or deferment within the allotment. The vegetative community is in good condition, providing suitable habitat for Columbian sharp-tailed grouse. Shrubs in some areas are extremely dense. The herbaceous component is vigorous and productive, providing ample forage and cover for this species. These conditions are expected to continue under the Proposed Action.

The proposed water and fence projects would have minimal impacts to sharp-tailed grouse. Construction of these projects would not occur from March 1 to June 30 to protect grouse that may be nesting in habitat on the allotment. Fences have potential to result in mortality of individual grouse as a result of collisions with wires which have low visibility. When building new fences, flagging or another type of marker should be installed to increase fence visibility and prevent collisions. Fences can also provide new perch sites for raptor species, some of which prey on grouse.

Environmental Consequences, No Action Alternative: Under this alternative, the solar well would not be drilled and there would be no water depletions. The No Action Alternative would therefore have “No Effect” to Colorado River Fish.

Mitigative Measures: None

Name of specialist and date: Desa Ausmus, 7/7/10

T&E AND SENSITIVE PLANTS

Affected Environment: There are no federally listed threatened or endangered or BLM sensitive plant species present on the allotment.

Environmental Consequences, both alternatives: None

Mitigative Measures: None

Name of specialist and date: Hunter Seim, 7/2/10

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no hazardous wastes present on the allotment.

Environmental Consequences, both alternatives: Potential releases of hazardous materials could occur due to vehicular access for livestock management operations and range project construction. Coolant, oil, and fuel are materials that could potentially be released. Due to the limited amount of vehicular activity that would be required, the potential for releases of any of

these materials is low and if a release were to occur, it would be minimal and highly localized and not result in an adverse impact to the allotment.

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 6/18/10

WATER QUALITY - GROUND

Affected Environment: The Williams Fork and Iles surface formations contain a potable water aquifer with levels within 300 feet from the surface, as evidence of multiple water wells in the area.

Environmental Consequences, both alternatives: Due to the limited amount of livestock grazing and dispersal of livestock over a relatively large area, there would be no impact to ground water quality by grazing on this allotment.

Mitigative Measures: None

Name of specialist and date: Marty O'Mara, 6/29/10

WATER QUALITY - SURFACE

Affected Environment: Surface runoff from the Creek Ranch allotment flows into Trout Creek, a tributary to the Yampa River. Water quality for Trout Creek (from the headgate of Spruce Hill Ditch to its confluence with Fish Creek) must support Aquatic Life Cold 1, Recreation E, Agriculture, and Water Supply (between June and February) beneficial uses. There are no water quality impairments or suspected water quality issues for waters influenced by the allotment.

Environmental Consequences, both alternatives: Surface waters present within the allotment are currently supporting classified uses. Permitting livestock grazing as proposed is consistent with land uses throughout the watershed and would not result in changes to water quality.

Mitigative Measures: None

Name of specialist and date: Emily Spencer, 6/28/10

Reference: Colorado Department of Public Health and Environment Water Quality Control Commission. 2010. Regulations #33, 37, and 93. <http://www.cdphe.state.co.us/regulations/wqccregs/index.html>

WETLANDS/RIPARIAN ZONES

Affected Environment: There are no wetlands, seeps, or springs identified on federal lands in the immediate vicinity of the proposed project area. Reach 1 (0.25 mile) of Trout Creek

bisects the southwest corner of the allotment. It was last assessed in 2008 and found to be in proper functioning condition.

Environmental Consequences, both alternatives: Trout Creek Reach 1 is meeting the public land health standard for riparian systems. The proposed water gap development would help ensure that this standard continues to be met in the future by limiting livestock access to the entire reach of Trout Creek during the summer months and the tank would improve livestock distribution over the entire allotment. The no action alternative would not provide for water developments. Although Trout Creek is currently meeting riparian health standards, livestock concentration along the creek may become an issue in the future, particularly in dry years.

Mitigative Measures: None

Name of specialist and date: Emily Spencer, 6/30/10

WILD & SCENIC RIVERS

Affected Environment: Not present.

Environmental Consequences, both alternatives: Not applicable.

Mitigative Measures: Not applicable.

Name of specialist and date: Gina Robison, 6/30/10

WSAs, WILDERNESS CHARACTERISTICS

Affected Environment: Not present.

Environmental Consequences, both alternatives: Not applicable.

Mitigative Measures: Not applicable.

Name of specialist and date: Gina Robison, 6/30/10

NON-CRITICAL ELEMENTS

SOILS

Affected Environment: The table below (Table 1) describes the major soil groups (over 500 acres) included within the Creek Ranch Allotment. Surface soil characteristics are stable and plant density and production is high to help protect from accelerated erosion. There is little to no evidence of erosion in the form of gullies, pedestals, flow patterns, or compaction. Land capability classification for all soil types include use for pasture, rangeland, forestland, and/or wildlife habitat. The main hazard for all of these soils is erosion unless close-growing plant

cover is maintained. Biological soil crusts are not present, but are not expected to be given the relatively high precipitation of the area and high density of vegetative ground cover.

Table 1. Soil Summary for the Creek Ranch Allotment (#04175)

Soil Map Unit (MU) & Soil Name (Acres in Allot.)	Map Unit Setting	Description
MU 133 Lintim loam, cool, 3 to 25% slopes	<i>Elevation: 7,190 to 7,910 feet</i> <i>Mean annual precipitation: 21-27"</i> <i>Ecological Site: Brushy Loam</i>	These slope soils are well drained with moderately low to moderately high permeability and high available water capacity. The soil profile is typically up to 65 inches deep.
MU 68D Rabbitears loam, 12 to 25% slopes	<i>Elevation: 6,600 to 7,600 feet</i> <i>Mean annual precipitation: 19-24"</i> <i>Ecological Site: Mountain Loam</i>	These sideslope soils are well drained with moderately high permeability and high available water capacity. The soil profile is typically up to 60 inches deep.
MU 2F Lintim loam, 25 to 65% slopes	<i>Elevation: 6,700 to 8,800 feet</i> <i>Mean annual precipitation: 18-25"</i> <i>Ecological Site: Mountain Loam</i>	These hillslope soils are well drained with moderately low to moderately high permeability and high available water capacity. The soil profile is typically up to 65 inches deep.
MU X8D Winevada-Splitro complex, 3 to 25% slopes	<i>Elevation: 7,000 to 8,100 feet</i> <i>Mean annual precipitation: 18-33"</i> <i>Ecological Site: Mountain Loam</i>	These mountain slope soils are well to somewhat excessively drained with moderately low to moderately high permeability. The soil profile can be anywhere between 20 and 80 inches deep to any restrictive features.

Environmental Consequences, both alternatives: Soils within the allotment are predominantly well-drained deep loams. Locating water and salt (or other supplements) on sites with high rock or plant/shrub cover to discourage livestock loitering would minimize impacts soils by preventing the creation of bare ground. Maintaining/constructing cross-fencing within the allotment accommodates flexibility in rotational grazing. Given the good condition of the vegetation within the allotment, the Proposed Action would continue to maintain sufficient plant cover to both protect the soil surface from wind and water erosion and allow the plant community to continue to produce litter in sufficient amounts to maintain litter and sustain appropriate water permeability. Under the no action alternative, fences would not be constructed that would facilitate the distribution of livestock during the grazing period and the upland water development would not be built. This would lead to unnecessary concentration of livestock along water sources, increasing the likelihood of compacted soils and bare ground in these areas.

Mitigative Measures: None

Name of specialist and date: Emily Spencer, 6/30/10

UPLAND VEGETATION

Affected Environment: The allotment is dominated by a mountain shrub community that is

very dense. Primary plant species include snowberry, serviceberry, Gambel's oak, Wyoming big sagebrush, and green Rabbitbrush. In addition, many forbs are present including mint, mule's ear, western yarrow, hound's tongue, buckwheat, and stick seed. Grasses are diverse and include Kentucky bluegrass, western wheatgrass, slender wheatgrass, bluebunch wheatgrass, smooth brome and needle-and-thread. The allotment is diverse and very productive. The brush shows only minimal evidence of browse on the snowberry. The plant composition is appropriate for the site.

Environmental Consequences, Proposed Action: Construction of pasture and property fencelines allows the lessee to more effectively manage livestock. Water development would allow for livestock to utilize the pastures more extensively. The heavy brush cover may limit livestock movement and fences, as well as water development, would allow the lessee to implement a rotational grazing plan, although this is not required by the Proposed Action. These range improvements would assist with managing livestock grazing utilization.

Environmental Consequences, No Action Alternative: This alternative would allow for continued grazing by cattle during the existing season of use. Without construction of fencelines and water development effective management of livestock is limited. Preferential grazing and loafing of livestock would be less manageable resulting in a heavier, less dispersed utilization of the vegetation community.

Mitigative Measures: None

Name of specialist and date: Christina Rhyne, 6/28/10

WILDLIFE, AQUATIC

Affected Environment: Trout Creek and the associated riparian vegetation provide potential habitat for small amphibians and other aquatic wildlife. Trout Creek also provides habitat for native fish species.

Environmental Consequences, both alternatives: The grazing system described in both the Proposed Action and No Action Alternative could incorporate rest, deferment and/or rotation, allowing for ample growing season rest for riparian areas. This would prevent riparian degradation and minimize any potential impacts to aquatic wildlife. The proposed water gap would protect riparian areas even further by preventing livestock from congregating in the riparian area around Trout Creek. Due to the above measures, grazing on the Creek Ranch allotment would be compatible with maintaining healthy habitat for aquatic wildlife species.

Mitigative Measures: None

Name of specialist and date: Desa Ausmus, 7/7/10

WILDLIFE, TERRESTRIAL

Affected Environment: A variety of wildlife habitats and their associated species occur in the general area. Common species such as coyotes, cottontail rabbits and ground squirrels likely use these habitats. The allotment provides winter habitat for elk and mule deer, however, none of this habitat is classified as 'critical' winter habitat. There are no known raptor nests in the vicinity of the allotment.

Environmental Consequences, both alternatives: The Proposed Action could potentially incorporate rest, rotation or deferment within the allotments. Although not required, this would allow management for ample rest and plant recovery periods. The vegetative community is in good condition, providing suitable habitat for a variety of terrestrial wildlife species. Shrubs, grasses and forbs are all vigorous and provide good cover and forage for wildlife. These conditions would continue under both alternatives.

Environmental Consequences, Proposed Action:

Water development: The proposed solar well and water gap would have minimal impacts to wildlife species. Wildlife would be displaced during project construction, but would return to the area when the projects are completed. Additional water sources would help with livestock distribution on the allotment and provide water for wildlife as well.

Fencing: Fences have potential to result in mortality of big game species as elk and mule deer can become entangled in fence wires during crossing. Maintaining old fences is important to preventing entanglements as wire often become loose if not tightened periodically. The new fence would reduce the risk of entanglement. Wooden stays would be used to ensure wire tautness and decrease entanglement risks.

Mitigative Measures: None

Name of specialist and date: Desa Ausmus, 7/7/10

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

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Fluid Minerals	EMO 6/29/10		
Forest Management	CR 6/18/10		
Hydrology/Ground		EMO 6/29/10	
Hydrology/Surface		ELS 6/28/10	
Paleontology		EMO 6/29/10	
Range Management		CR 6/28/10	
Realty Authorizations		BSB 06/29/10	
Recreation/Travel Mgmt		GMR 6/30/10	
Socio-Economics		BSB 06/29/10	
Solid Minerals		JAM 6/28/10	
Visual Resources		GMR 6/30/10	
Wild Horse & Burro Mgmt	CR 6/18/10		

CUMULATIVE IMPACTS SUMMARY: This allotment and areas surrounding have historically been grazed by both sheep and cattle. More recently, the area has seen residential development with the establishment of the Creek Ranch Subdivision. Numerous maintained and unmaintained roads exist throughout the area. These roads are used regularly by local residents and ranchers as well as by the primary recreation users in the area, hunters. Wildlife populations in the area are high, especially for deer and elk that compete with livestock for available forage throughout the area. The primary impacts from all of these activities are most immediately seen in the presence of roads, cultivation on private lands, and weed presence. The Proposed Action to continue grazing on this allotment is compatible with other uses, both historic and present, and would not add any new or detrimental impacts to those that are already present.

STANDARDS

PLANT AND ANIMAL COMMUNITY (animal) STANDARD: The Creek Ranch Allotment provides habitat for a variety of wildlife species. Elk and mule deer utilize this area year round. Overall, vegetative communities within the allotment are in good condition, providing suitable habitat for terrestrial wildlife species. Shrub cover is adequate to provide winter habitat for browsing species. This standard is met and would continue to be met under both alternatives.

Name of specialist and date: Desa Ausmus, 7/7/10

SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (animal)

STANDARD: The Creek Ranch Allotment provides habitat for Columbian sharp-tailed grouse, a BLM sensitive species. Mixed mountain shrublands on the allotment are healthy with an appropriate understory of grasses and forbs. This standard was being met and should continue to be met under both the Proposed Action and the No Action alternative.

Name of specialist and date: Desa Ausmus, 7/7/10

PLANT AND ANIMAL COMMUNITY (plant) STANDARD: This standard is currently being met and would continue to be met under the Proposed Action and No Action Alternative. Plant diversity and production are high and appropriate for the site. The density and production of key species is adequate to provide resilience from human activities. The plant community within the allotment is contributing to desired objectives.

Name of specialist and date: Christina Rhyne, 6/28/10

SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (plant)

STANDARD: There are no federally listed threatened or endangered or BLM sensitive plant species present on the allotment. This standard does not apply.

Name of specialist and date: Hunter Seim, 7/2/10

RIPARIAN SYSTEMS STANDARD: Trout Creek Reach 1 is meeting the public land health standard for riparian systems. The proposed water developments would help ensure that this standard continues to be met in the future by limiting livestock access to the entire reach of Trout Creek and improve livestock distribution over the entire allotment. This standard would also continue to be met under the No Action alternative.

Name of specialist and date: Emily Spencer, 6/30/10

WATER QUALITY STANDARD: Surface waters present within the allotment are currently supporting classified uses and there are no water quality impairments or suspected water quality issues for waters influenced by the allotment. Permitting livestock grazing as proposed is consistent with land uses throughout the watershed and would not result in changes to water quality. Both alternatives would meet the public land health standard for water quality.

Name of specialist and date: Emily Spencer, 6/30/10

UPLAND SOILS STANDARD: Given the good condition of soils and vegetation within the allotment, the Proposed Action would continue to maintain sufficient plant cover to both protect the soil surface from wind and water erosion and allow the plant community to continue to produce litter in sufficient amounts to maintain litter and sustain appropriate water permeability. This standard would also continue to be met under the No Action alternative.

Name of specialist and date: Emily Spencer, 6/30/10

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

ATTACHMENTS: Attachment #1a, Allotment Map
Attachment #1b, Proposed Range Improvements
Attachment #2, Standard and Common Terms and Conditions

SIGNATURE OF PREPARER:

DATE SIGNED:

SIGNATURE OF ENVIRONMENTAL REVIEWER:

DATE SIGNED:

Finding of No Significant Impact

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

1. Beneficial, adverse, direct, indirect, and cumulative environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Little Snake Resource Area and adjacent land.
2. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.
3. There would be no adverse impacts to regional or local air quality, prime or unique farmlands, known paleontological resources on public land within the area, wetlands, floodplain, areas with unique characteristics, ecologically critical areas or designated Areas of Critical Environmental Concern.
4. There are no highly controversial effects on the environment.
5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.
6. This alternative does not set a precedent for other actions that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.
7. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.
8. Based on previous and ongoing cultural surveys, and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected as anticipated by the Environmental Justice Policy.
9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. If, at a future time, there could be the potential for adverse impacts, treatments would be modified or mitigated not to have an adverse effect or new analysis would be conducted.
10. This alternative is in compliance with relevant Federal, State, and local laws, regulations, and requirements for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL:

DATE SIGNED:

Creek Ranch Allotment #04175

T5N R85W

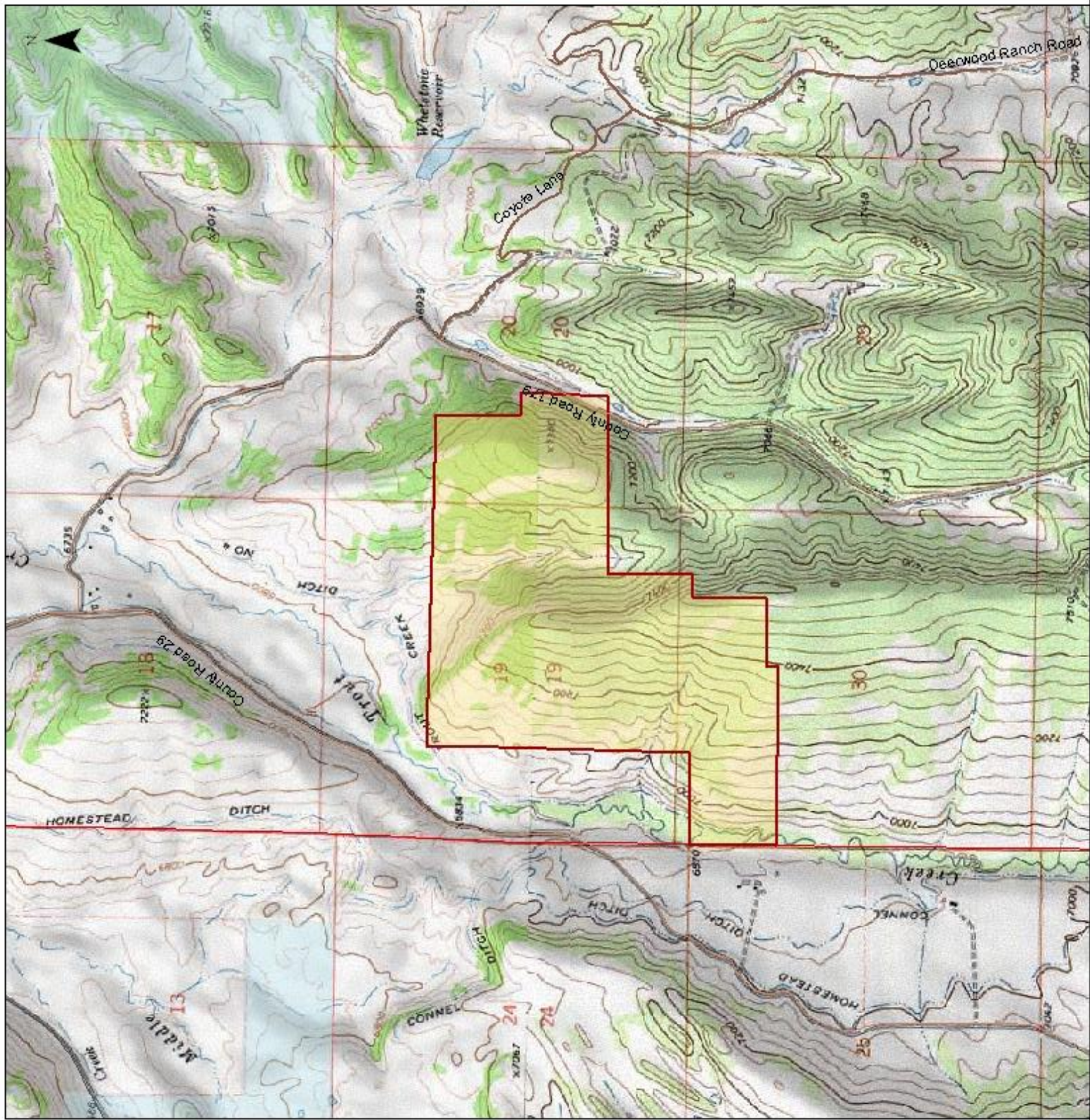
	Allotment Boundary
	Township/Range
Surface Management Status	
	Private
	State Land Board
	US BLM

BLM 488 acres



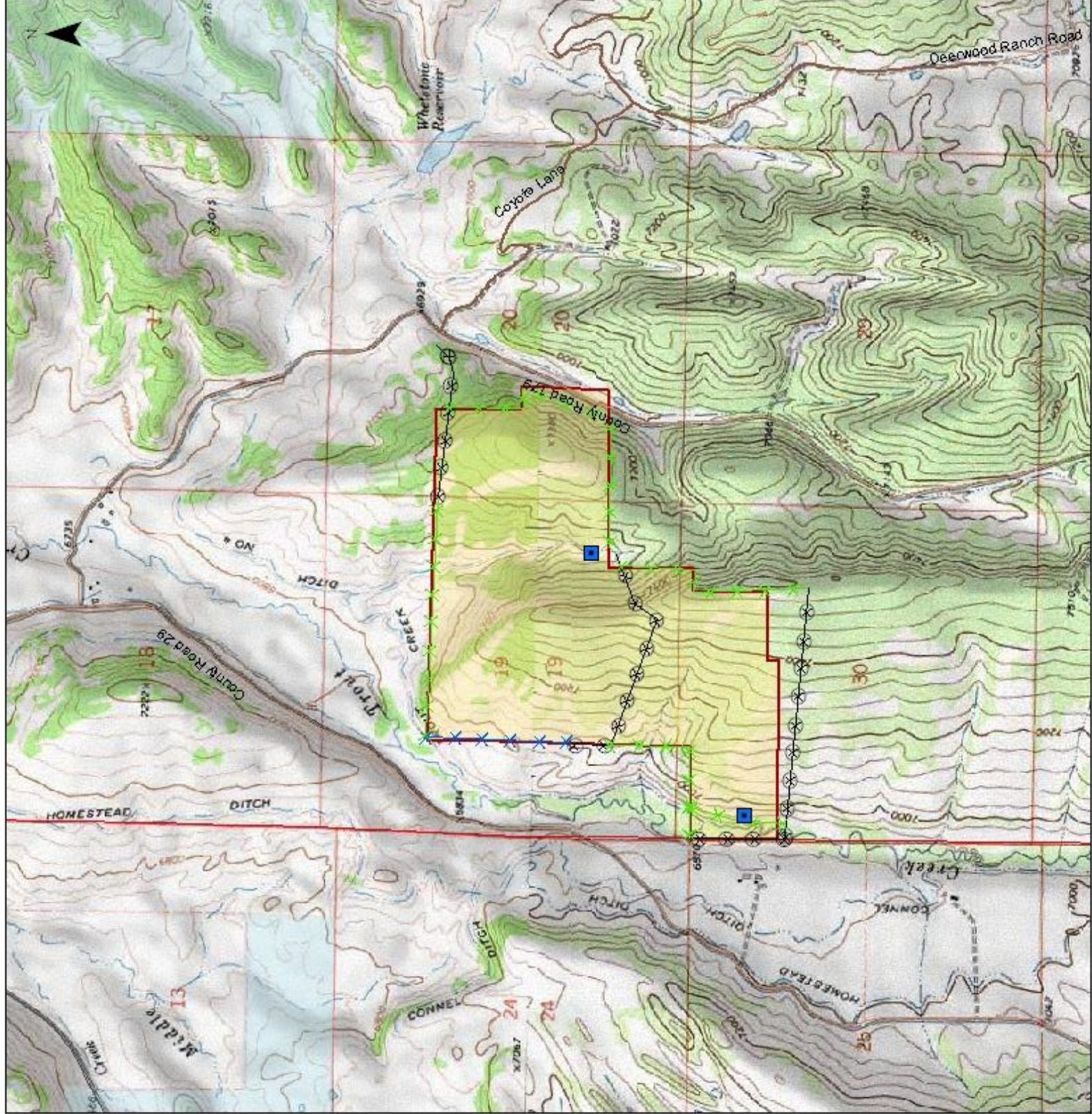
1:24,000

Oak Creek
Cow Creek



Creek Ranch Allotment #04175

T5N R85W



Legend

- Alotment Boundary (Red outline)
- Township/Range (Red outline)
- Proposed water development (Blue square)
- Creek Ranch fences**
 - Existing (Blue 'X')
 - Maintenance needed (Black circle with 'X')
 - Proposed construction (Green line)
- Surface Management Status**
 - Private (White)
 - State Land Board (Light blue)
 - US BLM (Yellow)

BLM 488 acres



1:24,000



Oak Creek
Cow Creek

ATTACHMENT #2
DOI-BLM-CO-N010-2010-0106-EA
TERMS AND CONDITIONS

Standard Terms and Conditions

- 1) Grazing permit or lease terms and conditions and the fees charged for grazing use are established in accordance with the provisions of the grazing regulations now or hereafter approved by the Secretary of the Interior.
- 2) They are subject to cancellation, in whole or in part, at any time because of:
 - a. Noncompliance by the permittee/lessee with rules and regulations;
 - b. Loss of control by the permittee/lessee of all or a part of the property upon which it is based;
 - c. A transfer of grazing preference by the permittee/lessee to another party;
 - d. A decrease in the lands administered by the Bureau of Land Management within the allotment(s) described;
 - e. Repeated willful unauthorized grazing use;
 - f. Loss of qualifications to hold a permit or lease.
- 3) They are subject to the terms and conditions of allotment management plans if such plans have been prepared. Allotment management plans **MUST** be incorporated in permits and leases when completed.
- 4) Those holding permits or leases **MUST** own or control and be responsible for the management of livestock authorized to graze.
- 5) The authorized officer may require counting and/or additional or special marking or tagging of the livestock authorized to graze.
- 6) The permittee's/lessee's grazing case file is available for public inspection as required by the Freedom of Information Act.
- 7) Grazing permits or leases are subject to the nondiscrimination clauses set forth in Executive Order 11246 of September 24, 1964, as amended. A copy of this order may be obtained from the authorized officer.
- 8) Livestock grazing use that is different from that authorized by a permit or lease **MUST** be applied for prior to the grazing period and **MUST** be filed with and approved by the authorized officer before grazing use can be made.
- 9) Billing notices are issued which specify fees due. Billing notices, when paid, become a part of the grazing permit or lease. Grazing use cannot be authorized during any period of delinquency in the payment of amounts due, including settlement for unauthorized use.

- 10) Grazing fee payments are due on the date specified on the billing notice and MUST be paid in full within 15 days of the due date, except as otherwise provided in the grazing permit or lease. If payment is not made within that time frame, a late fee (the greater of \$25 or 10 percent of the amount owed but not more than \$250) will be assessed.
- 11) No member of, or Delegate to, Congress or Resident Commissioner, after his/her election of appointment, or either before or after he/she has qualified, and during his/her continuance in office, and no officer, agent, or employee of the Department of Interior, other than members of Advisory committees appointed in accordance with the Federal Advisory Committee Act (5 U.S.C. App. 1) and Sections 309 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) shall be admitted to any share or part in a permit or lease, or derive any benefit to arise therefrom; and the provision of Section 3741 Revised Statute (41 U.S.C. 22), 18 U.S.C. Sections 431-433, and 43 CFR Part 7, enter into and form a part of a grazing permit or lease, so far as the same may be applicable.

Common Terms and Conditions

- A) Grazing use will not be authorized in excess of the amount of specified grazing use (AUM number) for each allotment. Numbers of livestock annually authorized in the allotment(s) may be more or less than the number listed on the permit/lease within the grazing use periods as long as the amount of specified grazing use is not exceeded.
- B) Unless there is a specific term and condition addressing utilization, the intensity of grazing use will insure that no more than 50% of the key grass species and 40% of the key browse species current years growth, by weight, is utilized at the end of the grazing season for winter allotments and the end of the growing season for allotments used during the growing season. Application of this term needs to recognize recurring livestock management that includes opportunity for regrowth, opportunity for spring growth prior to grazing, or growing season deferment.
- C) Failure to maintain range improvements to BLM standards in accordance with signed cooperative agreements and/or range improvement permits may result in the suspension of the annual grazing authorization, cancellation of the cooperative agreement or range improvement permit, and/or the eventual cancellation of this permit/lease.
- D) Storing or feeding supplemental forage on public lands other than salt or minerals must have prior approval. Forage to be fed or stored on public lands must be certified noxious weed-free. Salt and/or other mineral supplements shall be placed at least one-quarter mile from water sources or in such a manner as to promote even livestock distribution in the allotment or pasture.

- E) Pursuant to 43 CFR 10.4(g), the holder of this authorization must notify the authorized officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

The operator is responsible for informing all persons who are associated with the allotment operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any allotment activities or grazing activities, the operator is to immediately stop activities in the immediate vicinity and immediately contact the authorized officer. Within five working days the authorized officer will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the identified area can be used for grazing activities again.

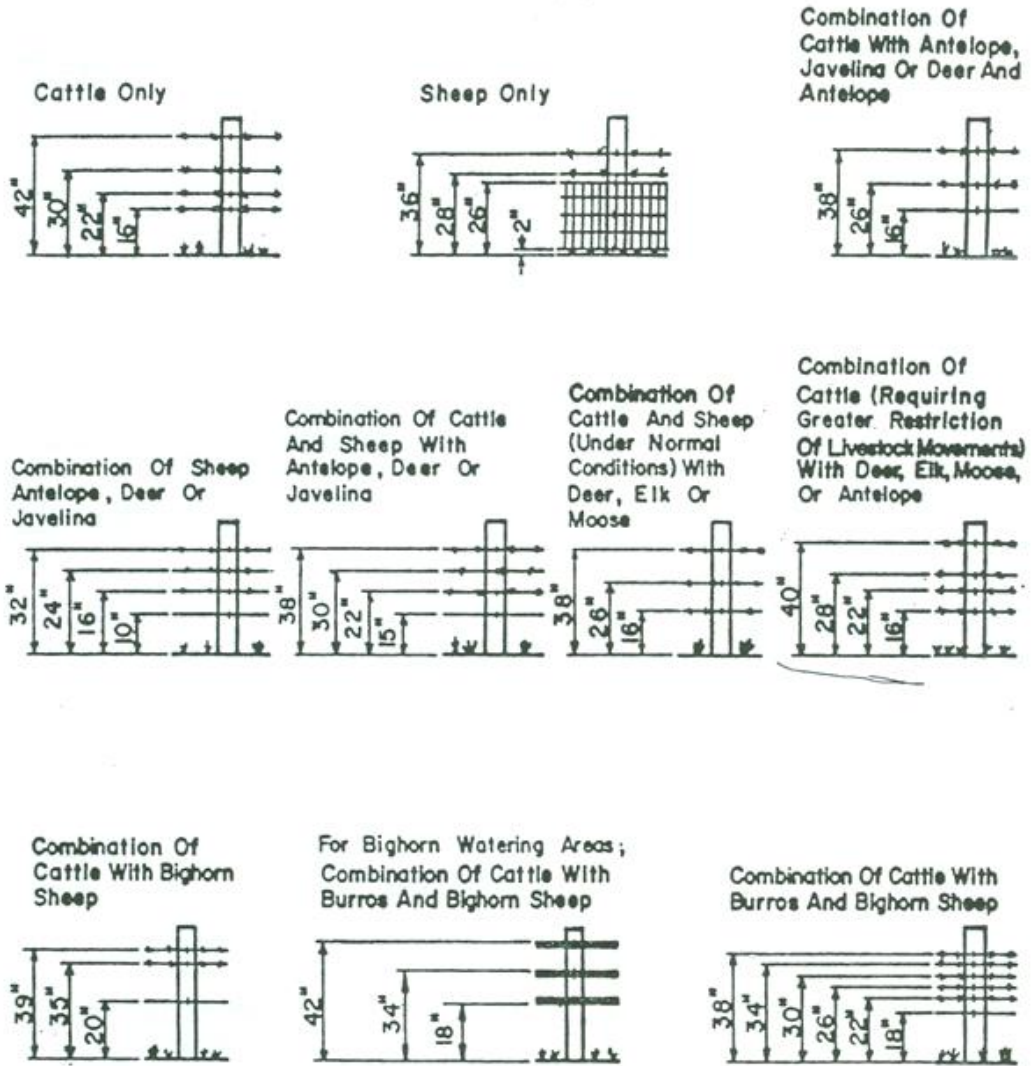
If paleontological materials (fossils) are uncovered during allotment activities, the operator is to immediately stop activities that might further disturb such materials and contact the authorized officer. The operator and the authorized officer will consult and determine the best options for avoiding or mitigating paleontological site damage.

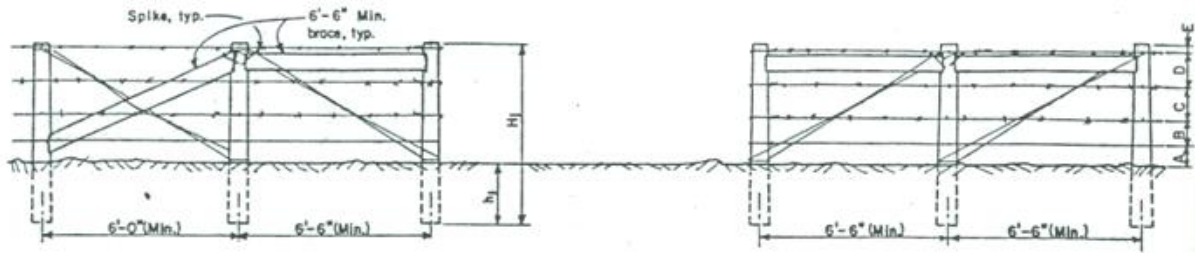
- F) No hazardous materials/hazardous or solid waste/trash shall be disposed of on public lands. If a release does occur, it shall immediately be reported to this office at (970) 826-5000.
- G) The permittee/lessee shall provide reasonable administrative access across private and leased lands to the BLM and its agents for the orderly management and protection of public lands.
- H) Application of a chemical or release of pathogens or insects on public lands must be approved by the authorized officer.
- I) The terms and conditions of this lease may be modified if additional information indicates that revision is necessary to conform with 43 CFR 4180.

ATTACHMENT #3
DOI-BLM-CO-N010-2010-0106-EA

Chapter 4

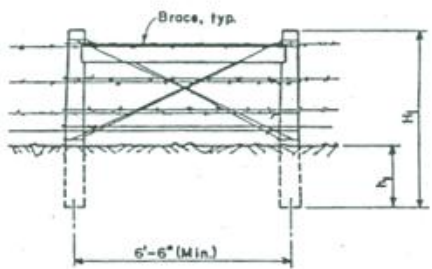
BLM WIRE SPACING STANDARDS
 NOT TO SCALE



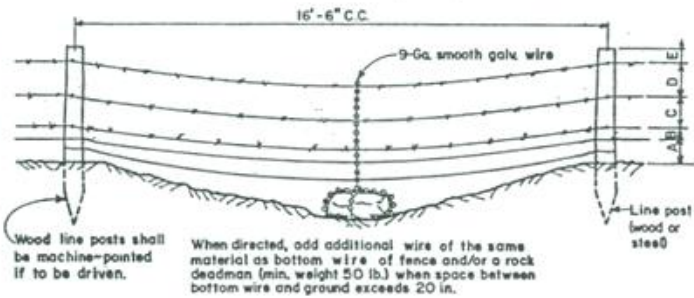


END PANEL-TYPE I
(See specifications for type to be used)

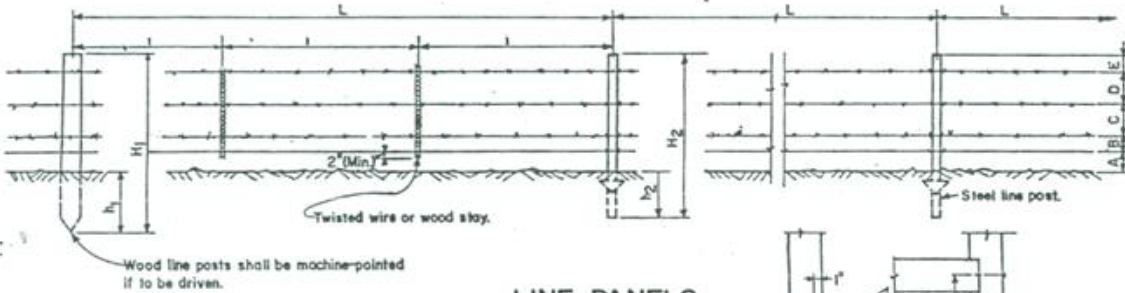
END PANEL-TYPE II
(See specifications for type to be used)



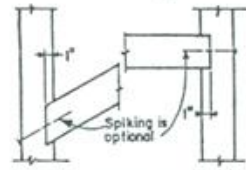
STRESS PANEL



PANEL AT MINOR DEPRESSION



LINE PANELS



MORTISE DETAIL

NOTE:

- 1. See specifications for the following:
 - a. Ratio of steel to wood line posts.
 - b. Post spacing.
 - c. Type of end panel to be used.
 - d. Type of wire to be used.
 - e. Spacing between wires.
 - f. Type of gate(s) to be used.
 - g. Type of corner panel(s) to be used.

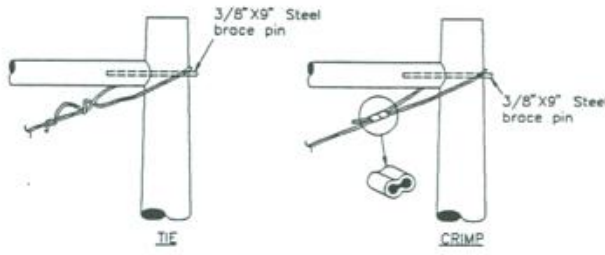
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
DIVISION OF ENGINEERING SYSTEMS DENVER SERVICE CENTER

**BARBED WIRE FENCE
TYPE-C**

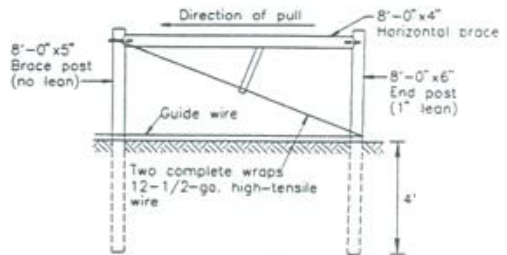
DESIGNED BY OTHERS
REVIEWED _____
APPROVED _____

DRAWN J.D.Sedillo SCALE NONE
DATE MARCH 9, 1984 SHEET OF

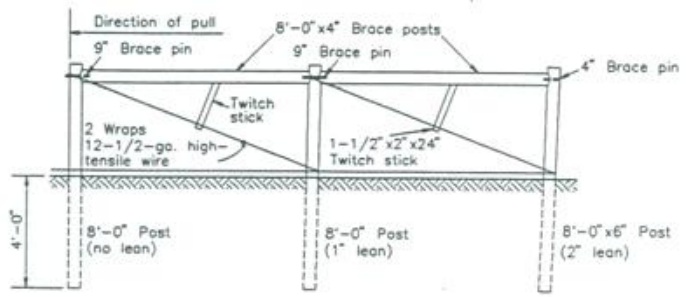
DRAWING NO. 02833-3



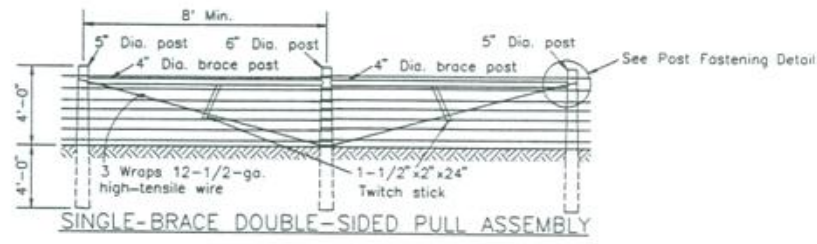
POST FASTENING DETAIL



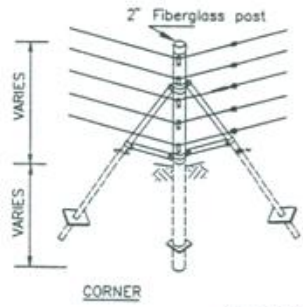
SINGLE-SPAN BRACE ASSEMBLY



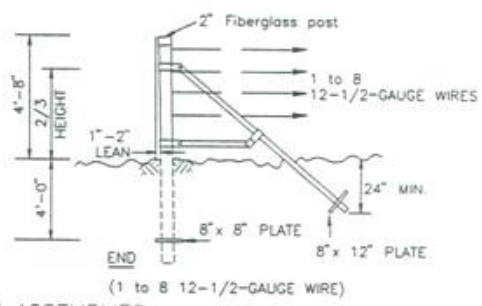
DOUBLE-SPAN BRACE ASSEMBLY
(at end of Gate Post)



SINGLE-BRACE DOUBLE-SIDED PULL ASSEMBLY



CORNER



END
(1 to 8 12-1/2-GAUGE WIRE)

ALTERNATE SYSTEM BRACE ASSEMBLIES

NOTE:

1. Single-span brace assembly may be used on systems of 4 wires or less.
2. For alternate system:
 - a. Dimensions apply to both 2-inch diameter end and corner posts.
 - b. To avoid scuffing of brace with line wires, it may be necessary to secure line wires to brace.

ALWAYS THINK SAFETY

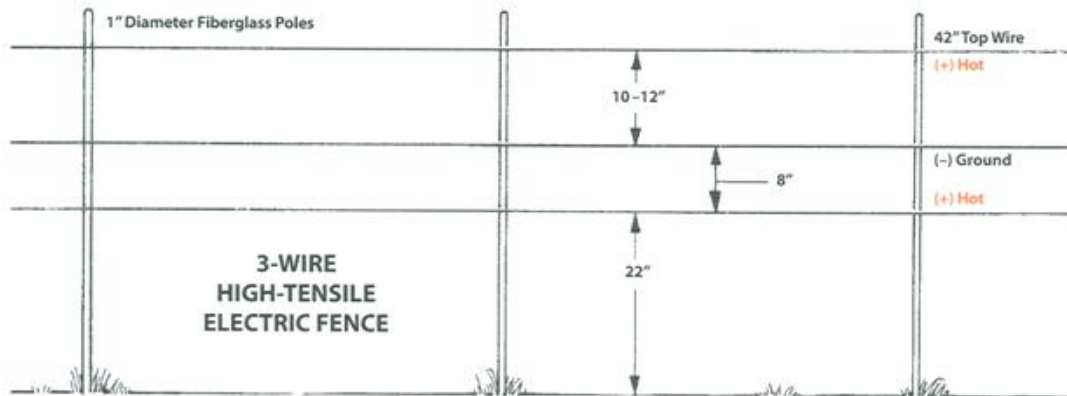
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF TECHNICAL SERVICES SERVICE CENTER	
HIGH-TENSILE WIRE FENCES	
DESIGNED	by others
REVIEWED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
DRAWN	S. Ashton
SCALE	NONE
DATE	June 3 1991
DRAWING NO.	02834-3

3-Wire High-Tensile Electric Fence

Researchers in Wyoming found that a 3-wire high-tensile fence (with a hot—ground—hot configuration) is not only effective for containing cattle and bison, but allows elk, mule deer, and pronghorn to traverse the fence. They found that wild ungulates usually were not deterred by electric fences—perhaps because of the insulating properties of their hair. Although wild ungulates were occasionally shocked when they nosed or bit a wire, or touched hot and grounded wires together, most animals readily negotiated the fences. Further, the researchers determined that 3-wire fences effectively contained bulls separated from cows coming into estrus, and calves from cows in the fall. Also, they found that a 3-wire fence was just as effective for containing bison as a 4-wire fence. A 2-wire fence can be used for areas without weaning calves but, curiously, pronghorn showed a high aversion to 2-wire fences, perhaps because of the novel height and their general reluctance to jump fences rather than crawl under (Karhu and Anderson 2003, 2006).

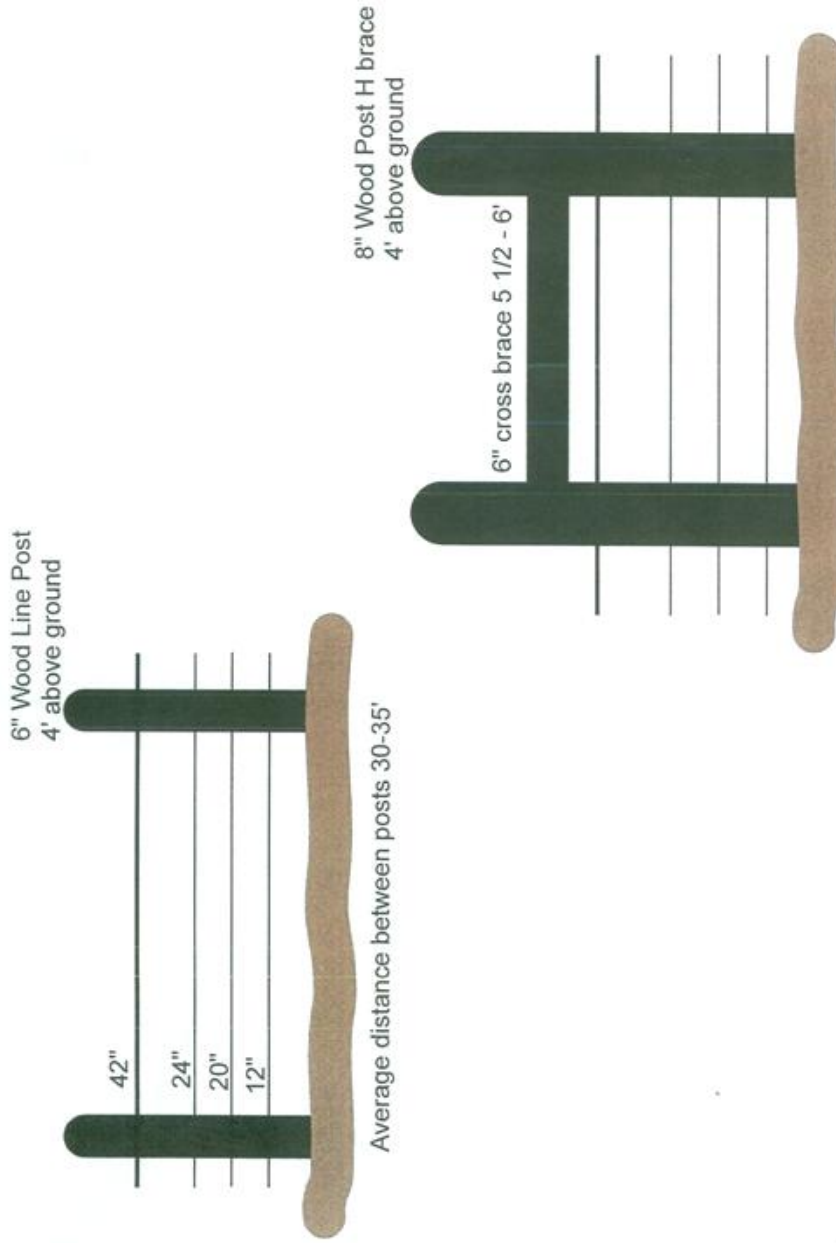
High-tensile fences require proper construction techniques, including adequate braces, proper tensioning, care not to kink or break wire, and proper attachments and insulators for posts and braces. However, high-tensile fences need minimal maintenance, provide great strength, can be easily electrified and will outlast most other fences.

- Maintaining fence flexibility is key to allowing wildlife to traverse the fence;
- Use fiberglass posts no greater than 1" in diameter;
- Brace fence with wood posts at least 5" in diameter; use braces at all corners, gates, and direction changes greater than 15 degrees. Appropriate insulators are needed with wooden posts;
- Space posts at a minimum of 50' apart if stays are used, and maximum of 50' apart with no stays;
- Fence stays can be problematic, making it harder for wildlife to pass between the wires, sometimes causing the fence to flip and twist when wildlife cross, and increasing the risk of grounding out the fence. If stays are used, the free span should be at least 30' for wildlife to cross effectively;
- Smooth, 12.5-gauge, Class III galvanized wire with a tensile strength of 170,000 PSI and breaking strength of 1,308 lbs. is adequate. To increase visibility, for the top wire use white poly-coated wire with the same specifications;
- Space wires at 22"/30"/40-42" from the ground. The top wire should be no higher than 42" with 10 to 12" between the top and middle wires. A bottom wire at 22" allows both young and adult wild animals to pass under easily. Connect wires to posts with metal clips or fasteners designed for electric fences;
- Top wire is hot; second wire is grounded, bottom wire is hot;
- Tighten wires to 150 lbs. tension. If too tight, the wires are more likely to break. Although high-tensile wire has a high breaking point, it is also more brittle, and easily broken if tightly bent or kinked;
- Place solar energizer according to manufacturer recommendations;
- Ground fence properly according to the energizer instructions, and add extra rods as needed. Locate ground rods at fence ends and intermittently in between;
- Keep fence electrified even when livestock are not present to prevent wildlife damage to fence. This also prevents the battery from freezing and prolongs battery life;
- Securely attach electric fence warning signs intermittently along the fence and at crossing points.



Source: Hanophy, W. 2009. Fencing with Wildlife in mind. Colorado Division of Wildlife, Denver, CO. 36 pp

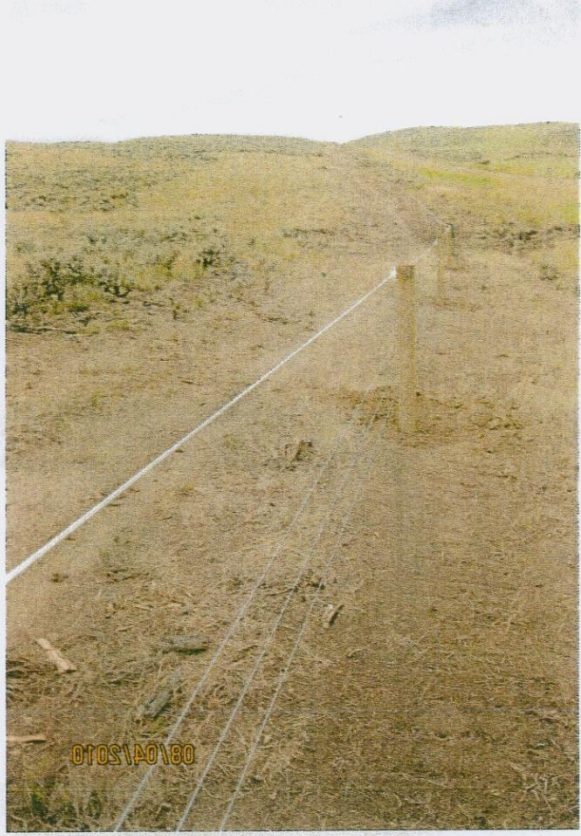
High Tensile Fence Design



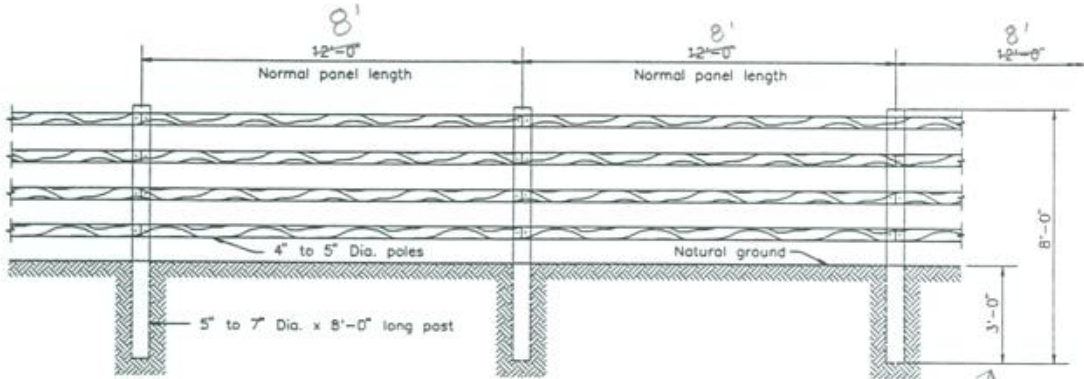
Notes:

- Top wire is white coated cable or white tape.
- Remaining three wires are high tensile (~21.5 gauge)
- The cable is connected to the post using fencing staples or plastic clips for the top row.
- The third wire from the bottom may have a protector around the line where the cable is stapled to the post.
- Ratcheting wire adjusters can be installed along the line.

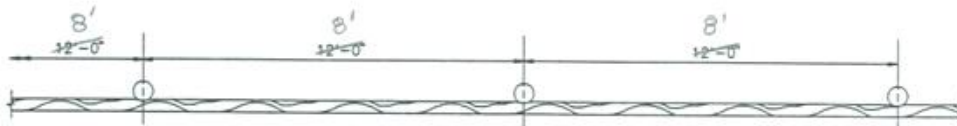




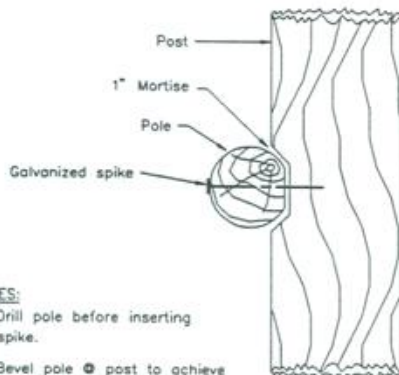
Change for water gap construction



ELEVATION



PLAN



NOTES:

1. Drill pole before inserting spike.
2. Bevel pole @ post to achieve 3" thickness.

POST AND POLE CONNECTION

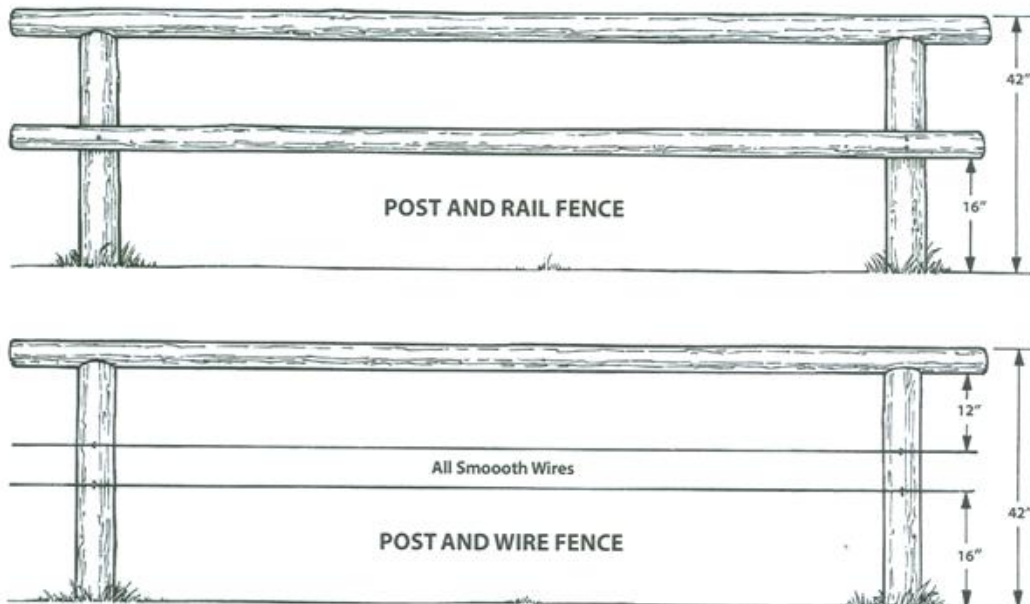
ALWAYS THINK SAFETY

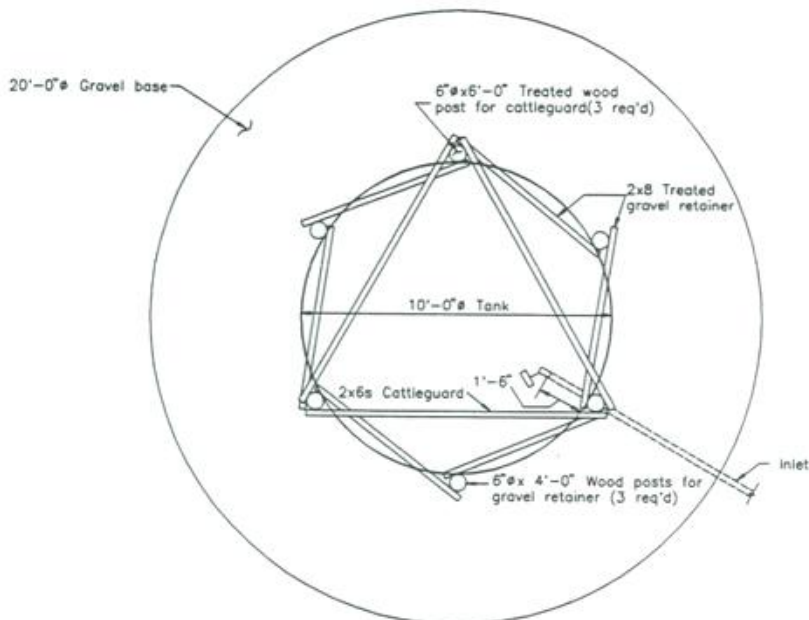
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF TECHNICAL SERVICES SERVICE CENTER	
POLE FENCE	
DESIGNED	by others
REVIEWED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
DRAWN	SCALE NONE
DATE	SEPTEMBER 25, 1990 SHEET OF
DRAWING NO. 02835-1	

Post and Rail Fence or Post and Wire Fence

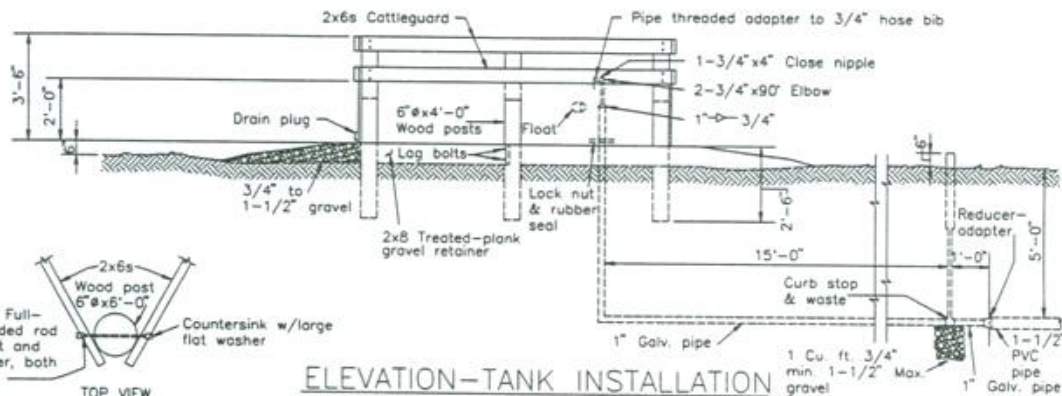
A post and rail fence is one of the more expensive fencing options and presents unique problems for migrating elk and deer. Fawns and calves have significant problems crossing these fences because they cannot jump high enough and cannot fit through or under them. Construct rail fences of three rails or fewer. A two-rail fence is preferable. Boards or planks should not be used as these can create a visual barrier. Limit fence height to 42" and provide 16" clearance between rails for younger animals to pass through. Place the bottom rail at least 16" above the ground.

Rail fences can also use a top rail with wires below. Place smooth lower wires at 16" and 28" above the ground. The second wire should be at least 12" below top rail.

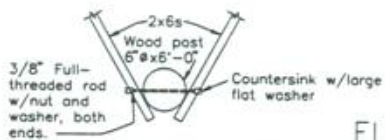




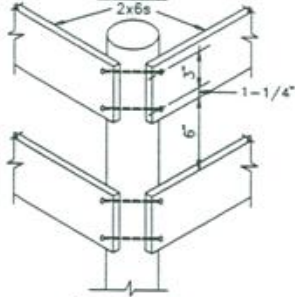
TOP VIEW



ELEVATION-TANK INSTALLATION

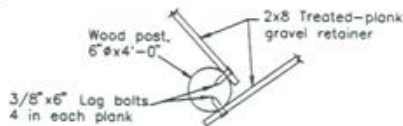


TOP VIEW



ELEVATION VIEW

CATLEGUARD DETAIL



RETAINER DETAIL

ALWAYS THINK SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT DIVISION OF TECHNICAL SERVICES SERVICE CENTER	
ROUND WATER TROUGH INSTALLATION	
DESIGNED	by others
REVIEWED	<i>[Signature]</i>
APPROVED	<i>[Signature]</i>
DRAWN	SCALE NONE
DATE June 10, 1991	SHEET OF
DRAWING NO 02802-2	