

Condition description tables for Range analysis.

Union C&H.

EXISTING CONDITION	DESIRED CONDITION
<p>Range Management: 3 pasture “deferred rotational” system. On date July 10, off date October 10. 111 cow/calf pairs permitted</p>	<p>Range Management: Keep dates, numbers and AUMs the same. Rotate grazing schedule on the pastures. Develop water and pipe to tanks in the uplands. Development cross/drift fences to keep cattle within pastures. Manage for better distribution of the cattle and utilization of the upland forage.</p>
<p>Vegetation:</p> <p>Lower Pasture: Mixed Native grass and forb communities provide a mosaic of plants with a variety of vegetative structures. Diverse mix of native upland and riparian graminoids and forbs present in proportion to moisture availability. Self-perpetuating riparian plant communities with properly functioning water, soil and vegetation systems. Shrublands with a mosaic of sagebrush age classes interspersed with a variety of native grasses and forbs. Vigorous multiple age class stands of aspen with healthy diverse native grass and forb understories. 2004 CF data in grassland site show good species diversity, high liter and low bare soil. 2004 CF data in 3 shrubland sites shows good species diversity, high liter and good to a little high % for bare soil. 2005 CF data for shrubland exclosure inside shows average species diversity, large increase in bare soil from historic measurement, litter remaining about the same and plant density decreasing. Outside shows average species diversity that is better than historic, litter is about the same, bare soil has increased but not as much of an increase as inside, and plant density has decreased, but not as much of a decrease as inside. This site is not meeting DC, but current management outside shows improvement over no management inside.</p> <p>Middle Pasture: Mixed Native grass and forb communities provide a mosaic of plants with a variety of vegetative structures. Diverse mix of native upland and riparian graminoids and forbs present in proportion to moisture availability. Self-perpetuating riparian plant communities with properly functioning water, soil and vegetation systems. Shrublands with a mosaic of sagebrush age classes interspersed with a variety of native grasses and forbs. Vigorous multiple age class stands of aspen with healthy diverse native grass and forb understories. 2004 CF data in mature shrubland site shows good species diversity with litter and bare soil a little high. Some small spots of Canada thistle present along roads.</p> <p>Upper Pasture: Mixed Native grass and forb communities provide a mosaic of plants with a variety of vegetative structures. Diverse mix of native upland and riparian graminoids and forbs present in proportion to moisture availability. Self-perpetuating riparian plant communities with properly functioning water, soil and</p>	<p>Vegetation:</p> <p>Lower Pasture: Maintain, continue to move toward, or start moving toward community type desired conditions that are outlined in Table 1. Manage for decreased bare soil and increased plant cover where needed. Overall pasture is moving toward DC with areas meeting and not meeting.</p> <p>Middle Pasture: Maintain, continue to move toward, or start moving toward community type desired conditions that are outlined in Table 1. Control or eradicate Canada thistle. Manage for decreased bare soil and increased plant cover where needed. Pasture is moving toward DC.</p> <p>Upper Pasture: Maintain, continue to move toward, or start moving toward community type desired conditions that are outlined in Table 1. Pasture is moving toward or meeting DC.</p>

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<p>vegetation systems. Alpine areas provide a diverse mix of desirable native grass and forb communities with good ground cover where developed soils exist. 2004 photo point shows good species diversity almost continuous ground cover and dense willow cover.</p>	
<p>Wildlife: Habitats – Alpine, Upland Grassland/Shrubland, Riparian, and Forest Habitats</p> <p>T&E Species – UFB and Canada lynx</p> <p>FSS Species – Allotment wide – Species and/or their habitats that are present or may be affected: white-tailed ptarmigan, wolverine, Brewer’s sparrow, loggerhead shrike, Hudsonian emerald dragonfly, boreal toad, northern leopard frog, pygmy shrew, bald eagle, northern harrier, peregrine falcon, olive-sided flycatcher, three-toed woodpecker, boreal owl, northern goshawk, American marten, and bighorn sheep</p> <p>MIS – Elk</p> <p>Overall – This allotment was historically run as a sheep and goat allotment and grazed season long. Currently, it is a cow and horse allotment only that is grazed with private inholdings and adjacent private lands as part of the allotment. Livestock distribution is generally poor and very limited to a small portion of the allotment (approximately 10-20%), and most of that is on private lands. Of this use, most occurs in the Lower Rotational Unit. Use is concentrated primarily in riparian areas, but also to a limited degree aspen, and other forested areas, grass/shrublands adjacent to riparian areas. Water sources are limited and most are located in riparian areas. Much of the Middle and Upper Rotational Units are not utilized by livestock due to poor capability/suitability, and lack of upland water. Precipitation is low to high (ranging from 12-28 inches annually, depending on elevation and location), which affects wildlife habitats and the capability of the allotment to support livestock grazing. Poor to fair habitat conditions in some areas, good condition in others depending on livestock use and concentrations. Breeding/reproductive, cover/shelter, forage/prey, and dispersal/movement habitats for the below wildlife species/habitats have all been adversely impacted to varying degrees, primarily in riparian and associated forested and upland habitats.</p> <p>T&E Species – UFB (see Alpine Habitat) and Canada lynx (see Alpine, Upland</p>	<p>Wildlife: T&E Species</p> <p>UFB:</p> <ul style="list-style-type: none"> ▪ Protect and maintain suitable habitat conditions, primarily areas of snow willow. <p>Canada Lynx:</p> <ul style="list-style-type: none"> ▪ Protect and maintain suitable lynx and snowshoe hare habitat conditions. ▪ Provide for the development of snowshoe hare habitat in natural or created openings within lynx habitat. ▪ Maintain and restore habitat connectivity across forested landscapes. ▪ For willow, achieve mid seral or higher condition, to maximize cover and prey availability. Such areas that are currently in late seral condition should not be degraded. ▪ In aspen stands - ensure sprouting and sprout survival is sufficient to perpetuate long-term viability of aspen clones. <p>FSS Species</p> <p>Boreal Toad:</p> <ul style="list-style-type: none"> ▪ Protect and maintain suitable breeding, summer, and winter hibernation habitat conditions and movement corridors for boreal toads: ▪ Maintain riparian-wetlands in proper functioning conditions (PFC). ▪ Minimize activities that may cause direct mortality (trampling) of boreal toads, egg masses, tadpoles, metamorphs (toadlets), and adults by livestock. ▪ Provide sufficient vegetation in boreal toad breeding, summer, and wintering areas (hibernacula) and movement corridors. Locate and protect toad movement corridors from livestock grazing impacts. ▪ Maintain a minimum of 75% of the streambank or shoreline in stable condition. ▪ Protect and enhance boreal toad habitat where possible with water developments. ▪ Minimize the spread of <i>Bd</i> (a chytrid fungus) to new areas from livestock grazing and associated activities.

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<p>Grassland/Shrubland, Riparian, and Forest Habitats) below.</p> <p>Alpine Habitat – Approximately 21% of this allotment. Little livestock use over the past decade with the exception of the Empire Reservoir Area which has received occasional use. Generally, there is a diverse mix of native grass, forbs, and shrub communities, and ground cover is suitable where developed soils exist. Abundance of dandelions resulting from historical grazing practices. However, plant species composition shifting to a less desirable (for wildlife) alpine mix in some areas. Noxious weeds present in limited areas (Canada thistle, downy brome, leafy spurge, toad flax). Overall good habitat conditions.</p> <p>Upland Grassland/and Shrubland Habitat – Approximately 25% of this allotment. Generally, there is good species diversity present in grasses and forbs, with a mosaic of vegetative structure. Decadent grasses increase with distance from riparian. Sagebrush is decadent in many areas with low species diversity. Vigor of grasses and shrubs/sagebrush decreases with distance from riparian areas. Overall, the habitat is in fair to good condition.</p> <p>Riparian Habitat – Approximately 5% of this area and a good proportion of this is on private lands. Most historic and current livestock use is concentrated on private lands which have heavy wood and herbaceous species utilization in many areas. Private land riparian areas are heavily impacted by grazing: mushroomed/hedged willows/hardwoods, lack of regeneration, pedaling/hummocking, hoof sheer of banks, a lot of bare banks and bare ground present in many areas, and species composition shifts from native to non-native/less desirable species in many areas. Forest Service lands generally are in much better habitat condition, having a mosaic of riparian graminoids and willows present. Riparian vegetation is dense and vigorous in most areas. Some areas are decadent. Trampling of vegetation by livestock has been documented in some areas. Noxious weeds present (Canada thistle, downy brome, and toad flax) in some locations. Some places have shown a decrease in wetted area, primarily on private, but also on some Forest Service lands. Benchmarks in the Upper and Lower Rotational Units (Empire Reservoir and Empire Gulch) were rated at PFC. Fair to good habitat condition on Forest Service lands and, poor in much of the private land riparian habitats due to concentrated use.</p>	<p>Bighorn Sheep:</p> <ul style="list-style-type: none"> ▪ Protect lambing areas during the spring (May 15 to June 30) from disturbance. ▪ Maintain in perpetuity temporal and spatial separation between domestic sheep/goats and native bighorn sheep. <p>Terrestrial MIS</p> <p>Elk:</p> <ul style="list-style-type: none"> ▪ Maintain or improve habitat conditions for elk. ▪ Maintain adequate forage and security cover year-round to allow CDOW to meet management objectives. ▪ Maintain and provide for movement corridors for elk that do not act as barriers/restrict movement or cause mortalities from range developments. ▪ Protect calving and other concentration areas. <p>All Habitats:</p> <ul style="list-style-type: none"> ▪ Reduce/eliminate the presence of noxious weeds to the extent possible. <p>Alpine Habitat:</p> <ul style="list-style-type: none"> ▪ Protect and maintain healthy alpine plant communities with a diverse mix of desirable native grass, forb and shrub communities, and minimal ground disturbance that provide suitable habitat conditions for alpine species. ▪ Where developed soils exist, ground cover is 80% or greater. ▪ Protect and maintain suitable habitat conditions in alpine and subalpine use areas (primarily willow carrs and riparian areas) to maintain or achieve mid seral or higher conditions to provide cover and forage for these species. <p>Forest Habitat:</p> <ul style="list-style-type: none"> ▪ Maintain/create forests with diverse age structure, late successional communities, openings, snags and down woody debris across forested areas; vigorous understory of native grasses (e.g., grama, needle and thread, junegrass, Arizona fescue, mountain muhly, mutton grass) and forbs where light allows. ▪ Perpetuate aspen communities with diverse age structure. Aspen areas shall include late successional communities, regeneration, openings, snags and down woody debris; vigorous and diverse native grass and forb understories shall be present. Protect aspen and other

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<p>Forest Habitat – Approximately 36% of this allotment. In aspen stands, there is a diverse native grass and forb understory but grasses largely decadent. Downed logs present. Diverse age structure is present. Lodgepole stands are mature. Little grass understory is present. MPB activity in lodgepole is increasing and understory development is increasing. Presences of snags/logs are increasing compared to recent past. Mixed conifer stands are mature. Canopy cover is decreasing due to mortality, which is also causing under story to increase. Overall, the habitat is in good condition on both private and Forest Service lands.</p>	<p>hardwood regeneration.</p> <p>Upland Grassland/Shrubland Habitat:</p> <ul style="list-style-type: none"> ▪ Protect and maintain healthy upland grassland and shrubland plant communities that provides and maintains and/or enhances suitable habitat conditions for these species. <p>Riparian Habitat</p> <ul style="list-style-type: none"> ▪ Protect and maintain healthy riparian and wetland plant communities that provides and maintains and/or enhances suitable habitat conditions for riparian dependant species. Provide habitats for viable populations of wildlife species.
<p>Fisheries: From examining topographical maps, it appears the allotment is drained primarily by two tributaries of the Arkansas River, Empire Gulch and Big Union Creek. The allotment also contains one reservoir (Empire Reservoir) and a series of wetland complexes. These streams, reservoirs and wetland complexes are likely populated by brook trout, given their wide distribution across the Forest. The Forest GIS database indicates approximately 107 km of intermittent stream and 35 km of perennial stream. The allotment receives greater precipitation than all other allotments except for the Browns Creek allotment. With greater precipitation, streams and wetland complexes may be larger than average, thus providing more fish habitat. The quality of the habitat, however, is suspect because of historic mining activities on the allotment. The allotment consists of many historic mines and the Big Union Creek watershed was rated as Class III by the Inland West Watershed Initiative. Class III watersheds are characterized by major impacts to the land that have resulted in severe damage to stream and riparian function. A watershed condition analysis was performed by the Pike and San Isabel National Forests and the Cimarron and Comanche National Grasslands in 1998. The analysis determined that Big Union Creek suffered from contamination by metals, as well as excessive sediment levels and stream-bank damage. This may limit the fish population. However, the resiliency of brook trout is high and this author has conducted many angling surveys in similar habitats near the allotment. These surveys demonstrated high quality brook trout fisheries. Therefore, it is very likely that most waters on the Union allotment likely support self-sustaining brook trout populations.</p> <p>Mollusks: Presence of Rocky Mountain capshell</p>	<p>All aquatic species: Riparian ecosystems meet or move towards at least an upper mid-seral stage. Riparian plant communities are healthy and self-perpetuating. State and Federal water quality standards met. Stream channels and still water-body shorelines are stable and well vegetated with appropriate species. Suitable riparian habitat exists for viable populations of wildlife, fish and terrestrial and aquatic invertebrates.</p>

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<p>snail or suitable habitat on the allotment is unknown. Aquatic invertebrates: Suitable habitat for <i>O. susanae</i> (large springs) does not exist on the allotment.</p>	
<p>Hydrology:</p> <p>Lower Pasture:</p> <p>Dry Union Gulch: Site visited August 5, 2004. According to this survey and the GIS riparian coverage, the riparian is limited to the headwaters of Dry Union Gulch. Below this point, FSR 111 and 111A have a significant impact on the amount of sediment delivered from the road into Dry Union Gulch.</p> <p>Two riparian exclosures have excellent vegetation and diversity in the headwaters area. A spring exists above one of the exclosures and may have provided water to tank 305; the crew reported the tank to be in good condition. Appears tank is not in service. Pedestaling occurs in and around the spring.</p> <p>Pit 306 is greatly affected by the roads. Photos of this pit show little if any capacity remains; sediment from the roads have filled in much of the pit.</p> <p>Middle Pasture:</p> <p>Empire Gulch Benchmark: Site visited July 27, 2005. Stream and riparian are dominated by beaver and their dams. System rated as proper functioning condition (PFC), provided the beaver are able to maintain their dams. Small trout seen. Area shows signs of grazing, yet 'no real harm done' noted on existing/desired condition form.</p> <p>Based on information recorded and photos taken by crew, hydrologist supports this PFC rating.</p> <p>Upper Pasture:</p> <p>Empire Reservoir Benchmark: Site visited July 27, 2005. Crew reported: 'Good ground cover, as well as healthy willow and riparian bushes. Sedges also present. Stream itself is well armored with rocks. There is some hoof shear in the area, but it is not really affecting the stream as the vegetation is holding the stream together.' Crew rated this benchmark at PFC.</p>	<p>Hydrology:</p> <p>Lower Pasture:</p> <p>Dry Union Gulch: Relocate and/or close road segments affecting the hydrology of Dry Union Gulch. If tank 305 is not functioning, then consider redeveloping this tank as it is out of the riparian. Protect the spring source above the exclosure, or extend current exclosure to include the spring source. Note, this redevelopment is not listed in Appendix B of the range report. Remove the sediment from pit 306.</p> <p>Middle Pasture:</p> <p>Empire Gulch Benchmark: Benchmark is at its desired condition as long as beaver dams remain stable. More willows on southeast end of benchmark would improve overall condition.</p> <p>Upper Pasture:</p> <p>Empire Reservoir Benchmark: Prevent dewatering of pasture above Empire Reservoir. Reduce the amount of hoof shearing and pedestaling that is occurring. Eliminate soil compaction in the uplands, and in and along the riparian by controlling grazing to non-saturated sites. Note, pasture is relatively small in size, approximately 200 acres.</p> <p>Water Developments:</p> <p>See recommendation made for lower pasture developments above. Note, no new or redevelopment of existing water developments are reported in Appendix B of the range report.</p> <p>Summary:</p> <p>2 developed watering sites on NFS lands. 0 miles of pipeline constructed.</p>

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<p>From photos it is evident that ungulates are compacting the soils throughout the benchmark and pedestaling is taking place. Soil moisture storage is being reduced, and therefore less infiltration is occurring and more runoff is occurring at a faster rate. Because of the sensitivity of this subalpine/alpine system, hydrologist would rate this system as functional-at-risk with a likely downward trend.</p> <p>Water Developments:</p> <p>Upper pasture: None recorded. Middle pasture: None recorded. Lower pasture: One tank and one pit. Additional analysis unit: None recorded.</p>	
<p>Soils: Upper Rotational Unit: Photographs taken in July of 2005 show some trampling and soil compaction present in an area adjacent to the pond immediately north of the benchmark. Most of pasture appears to have good vegetation cover. Benchmark and Key Area UNURK1: Soil map unit 903C, Cryoborolls - Cryaquolls complex, found in alpine areas where sedimentary rocks predominate at an elevation range of 11,600 to 13,000 feet with a moderate soil erosion hazard and an effective rooting depth greater than 60 inches for both soils.</p> <p>Lower Rotational Unit: Photographs taken in July of 2005 along benchmark reach reveal a riparian area in good condition with good ground cover, stable soils, and little or no trampling or compaction of soils evident. Benchmark and Key Area UNLRK1: Soil Map Unit 100F, Cryofluvents Cryaquolls - Histosols complex, found in subalpine valley flood plains. This complex has an effective rooting depth greater than 40 inches and a depth to seasonal high water table of 1 foot (very shallow water table).</p> <p>Middle Rotational Unit: Key Area UNMRK1: 110F, Cryoborolls Cryaquolls association is found in valley bottoms and have an effective rooting depth greater than 60 inches.</p>	<p>Soils: Upper Rotational Unit: Decreased trampling and compaction in areas near ponds and riparian areas. Maintenance of good vegetative cover in upland pasture areas. Revegetating these soils with riparian vegetation will require maintenance of a high water table. Buffer zones are required on adjacent map units to minimize impacts to wetlands. Maintenance of stable stream channels.</p> <p>Lower Rotational Unit: Maintain riparian area in good condition with good ground cover, stable soils, and little or no trampling or compaction of soils. Soil type 100F, Cryofluvents Cryaquolls - Histosols complex, A short growing season reduces the potential for successful planting. Maintenance of a high water table is required to replant riparian vegetation. Buffer zones may be required on adjacent map units to minimize impacts to wetlands. Maintenance of stable stream channels.</p> <p>Middle Rotational Unit: Revegetating Cryaquolls soil with riparian vegetation will require maintenance of a high water table. Buffer zones may be required on adjacent map units to minimize impacts to wetlands. Maintenance of stable stream channels.</p>
<p>Recreation: Recreation use is low with the major activities including disperse camping, scenic</p>	<p>Recreation: Maintain compatible use with campers and cattle where campers are minimally</p>

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<p>drives, and big game hunting. Private landowners from Empire Creek area have often left gates open permitting cattle to access private land or another pasture. There are no developed recreation facilities or NFS trails in this allotment.</p>	<p>affected by cattle's waste and trampling, and campers are not blocking cattle paths. Recreationist are well informed they are sharing the land with cattle, and when to keep gates closed and open, depending on whether cattle are in the pastures. Range improvements do not conflict with recreation use, i.e. placing water improvements in highly desirable campsites and trails</p>
<p>Forestry: Aspen forests are mature and most aspen stands are being encroached with a dense, sub-alpine fir understory. Lodgepole pine forests are mature and currently are only showing isolated infestations of the mountain pine beetles and dwarf mistletoe. Understory forage and grasses are minimal. Engelmann spruce and sub-alpine fir forests exist on steeper slopes at the higher elevations of the allotment. No recent salvage timber sales or prescribed burning projects have occurred or are planned on the allotment.</p>	<p>Forestry: Maintain a healthy, mixed-conifer forest community of lodgepole pine, spruce-fir, and aspen with a dispersed age structure, openings, snags and down woody debris across these forested areas. Improve forest health conditions throughout. Perpetuate aspen communities with diverse age structures including late successional communities, regeneration, and openings. Maintain a vigorous understory of native grasses (grama, needle and thread, junegrass, Arizona fescue, mountain muhly, mutton grass) and forbs throughout these forest communities. Minimize the encroachment of conifers onto the grassland types</p>