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Biological Assessments/ Evaluations

Canon C&H Allotment

Rio Grande Cutthroat Biological Evaluation

Project Description (timing and duration)

The proposed action is to implement a grazing strategy for the Allotment Management Plan (AMP) for the Canon Cattle and Horse Allotment. The current AMP is outdated and the grazing system on the allotment is in need of refinement. The AMP will integrate the actions needed to manage rangeland resources for grazing, soil and watershed protections, maintenance or improvement of vegetative conditions, wildlife and other resources within the area. Management activities included as part of the proposed action include:

- Establish estimated grazing capacity.
- Specify permitted livestock use.
- Implement an appropriate grazing system to maintain or improve ecological status of plant communities with no downward trend.
- Monitor for compliance with Forest Plan Standards and Guidelines.
- Add range improvements to control livestock distribution.

Three grazing alternatives were developed for the Canon Cattle and Horse Allotment. This biological evaluation considers the effects of each of the identified alternatives (abbreviated) from Chapter 2 of the Environmental Assessment as follows, and respective range improvements, on the Rio Grande cutthroat trout.

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Alternative 1 – Proposed Action Alternative

This alternative is a one herd seven pasture deferred grazing system; 179 cow/calf pairs from 6/26 to 10/1. The West Lost Trail and Lost Trail pastures would be combined into one pasture

Alternative 2 – Four Pasture Alternative

This alternative would close the Bear Creek, Rio Grande and Pole Creek pastures to grazing. The remaining portion of the allotment would be open to grazing with 104 cow/calf pairs from 6/26-10/1. The reduced capable acres would require a reduction in animal months of grazing.

Alternative 3 – No Grazing Alternative

This alternative provides for no grazing on the allotment; therefore, no authorized livestock use would occur. There would be no need for individual grazing units; therefore, pasture division fences and cattle guards would be removed.

Location/Map

The Canon C&H Allotment is approximately 21,700 acres in size. It is located in the western portion of the Divide Ranger District, Rio Grande National Forest. The allotment lies within Hinsdale and San Juan County and is approximately 32 miles west of Creede, Colorado. See the enclosed map for more information.

Habitat Overview

The allotment is made up of long narrow valleys, dominated by riparian bottoms and narrow bands of fescue dominated uplands. North aspects are typically greater than 40% and are heavily timbered. The allotment lies within the upper Rio Grande watershed and includes Lost Trail Creek, Pole Creek, and Bear Creek tributaries.

Within this allotment, approximately 4,321 acres are considered capable and suitable for livestock grazing. Capable range within the allotment consists of grasslands on slopes of less than 40%, riparian and wetland areas that do not have standing water seasonlong, and areas that produce at least 200 acres of forage per acre.

IV. Region 2 Sensitive Species

Species	Suitable Habitat w/in Area of Influence/Project Site	Species Doc. w/in or near Area of Influence/Project Site	Basic Habitat Description
Rio Grande Cutthroat Trout <i>O. clarkii virginalis</i>	Yes	Yes	Streams, rivers and lakes. Core populations most frequently found in headwaters.

Survey/Occurrence Information

Colorado Division of Wildlife (CDOW) stocked hatchery-reared Rio Grande cutthroat trout (RGCT) in Pole Creek, Lost Trail Creek, West Lost Trail Creek and the Upper Rio Grande in 1996 and 2001. These fish are genetically “pure” strains of Rio Grande cutthroat trout (RGCT) but are not classified as “core” populations due to the presence of nonnative trout in the streams which could interbreed with the RGCT. CDOW classifies these populations as “recreation populations” which serve the dual purpose of providing sportfish opportunities and also provides genetic refugia if only fall spawning trout species occur in the stream, such as in Lost Trail Creek. RGCT averaged approximately 2” in total length at stocking.

Several species of nonnative trout have been stocked in the Upper Rio Grande watershed. Yellowstone cutthroat trout have been stocked in West Lost Trail Creek, Pole Creek, and Quartzite Creek. Pikes Peak cutthroat trout have been stocked in Bear Creek and brook trout have been documented in West Lost Trail Creek, Lost Trail Creek, Bear Creek, and Quartzite Creek.

Population estimates conducted in West Lost Trail Creek in 1994 documented brook trout biomass at 150 pounds of fish per acre of stream surveyed. Size of brook trout ranged from 2 to 12 inches in total length. Streams have not been surveyed since the Rio Grande cutthroat trout were stocked.

Survey and occurrence information for this evaluation was gathered from the Forest Species Occurrence Database, the Colorado Division of Wildlife Database, and internal records and documents.

Analysis of Effects

Life History and Habitat Needs

Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) are the southernmost of 14 subspecies of cutthroat trout and are the only trout native to the Rio Grande drainage (Behnke 1992). This species evolved in the absence of other salmonids, so it does not compete well with other trout species. In addition, it readily hybridizes with rainbow trout and other cutthroat trout subspecies. They typically inhabit high mountain streams and are often restricted to headwater reaches with marginal habitat. They tend to be susceptible to angling pressure, so areas with difficult access provide them the most protection.

Rio Grande cutthroat trout (RGCT) have a life history similar to other interior cutthroat trout subspecies. They reach sexual maturity at age 3 or 4 and, in lower elevation waters, may attain total lengths up to 15 inches by age 4. Growth typical slows following maturity (Behnke and Zarn 1976). Maximum age is 8 years (Lusch 1988, Bison-M, 2001). In high elevation headwaters, growth rates are typically slower due to a shorter growing season, colder water temperatures, and a scarcity of food items.

Depending upon stream temperature, spawning may begin as early as March although, in some high elevation, cold-water streams spawning may not occur until July. Eggs are laid in gravel redds built by the female in flowing water where high dissolved oxygen levels exist (Bison-M, 2001). RGCT produce several hundred to 4,500 eggs that hatch within 28 to 49 days, depending upon the water temperatures.

Cutthroat trout are opportunistic feeders. Post-yolksac larvae feed on zooplankton and early instars of aquatic insects. The young trout exhibit ontogenetic changes in feeding habits: trout smaller than 6.0 cm prefer planktonic *Daphnia*, whereas larger trout prefer benthic prey organisms such as small insects, crustaceans, annelids and mollusks. Adults tend to be more piscivorous. Terrestrial insects may account for most of the diet during summer months. Aquatic invertebrates are most abundant and diverse in riffle areas and these trout feed heavily in and downstream of those areas (Bison-M 2001).

Four distinct types of habitat are necessary for long-term trout survival: spawning, rearing, adult, and overwintering (Behnke 1992). Spawning habitat is typically found at the top of riffles or the downstream edge of pools where clean silt-free gravel, predominantly less than 4 cm in diameter, can be found. Rearing habitat consists of stream margins and backwater pool habitats characterized by low water velocities, protective cover, and abundant invertebrates. Adult habitat consists of areas where slow moving waters are juxtaposed with fast waters that carry food and protective cover is provided by boulders, logs, overhanging vegetation, and undercut banks. Overwinter habitat consists of deep, low velocity waters with protective cover such as found in deep pools with large boulders and rootwads and/or areas with deep beaver ponds.

On the RGNF, approximately 1,050 miles of streams and over 1200 lake surface acres provide trout habitat. Core (> 99% genetically pure) and conservation populations (> 90% pure) of RGCT are typically restricted to smaller 6th to 7th-level streams and currently occupy less than 200 stream miles. Colorado Division of Wildlife has

stocked RGCT (recreation populations) in an additional 150 miles of stream and 59 high mountain lakes for the purpose of providing sport fishing opportunities and to maintain genetic refugia for pure populations.

Area of Influence

The area of influence includes the uplands and riparian areas within the Upper Rio Grande watershed. These areas can affect the quality and quantity of water as well as stream morphology and aquatic habitat.

Project Site

All perennial waters within the project area are considered potential trout waters. RGCT populations are known to occur in Pole Creek, Lost Trail Creek, West Lost Trail Creek, and in the upper Rio Grande.

Direct and Indirect Effects

Livestock grazing can affect riparian and aquatic habitats by changing, reducing, or directly eliminating vegetation in riparian and upland areas and by trampling stream banks. Changes in overland flow and erosion from a reduction in vegetation can alter the geomorphology of the stream channel and increase sedimentation. The overall magnitude of these effects depends upon the existing and potential habitat condition, number of animals, and duration of grazing.

Streams impacted by grazing are generally wider and shallower, contain more fine sediment, have unstable banks with little undercut, and have higher stream temperatures due to loss of riparian vegetation (Behnke and Zarn 1976, Armour 1977, Platts 1991). Loss of healthy riparian vegetation can also limit availability of terrestrial invertebrate inputs to the stream. Poor grazing practices can sometimes lead to direct loss or fragmentation of suitable trout habitat by introducing thermal barriers resulting from broad, shallow stream channels, and reduced canopy cover.

Site visits were conducted on this allotment during 1995 and 1996 and, although overall stream health appeared quite good, a few localized problem areas were identified. Stream widening, bank instability, high levels of fine sediment, and short stubble heights were noted in areas of Pole Creek, lower Lost Trail Creek, the confluence of Lost Trail and West Lost Trail Creeks, Bear Creek Junction, and in Brewster Park on the Rio Grande. These problem areas are where livestock have congregated regularly over time.

Within these localized problem areas, trout spawning habitat and overwintering habitat could be impacted. But, over the entire length of the individual streams, the trout populations and habitat appeared to be stable and in good shape.

The riparian areas have been identified as the key to successful management of this allotment. The various alternatives, including their respective range improvements, identified for this AMP are designed to reduce the overall affects of grazing on the riparian/stream corridors and therefore, minimize the effects on aquatic species. The range improvements provide a means to better manage herd movement and dispersal.

Alternative 1 - Under this alternative one herd of 179 pairs would graze seven separate pastures for approximately 2 week intervals.

Under this alternative, a higher number of cattle would graze a larger area approximately twice the size of Alternative 2. The potential for cattle to impact stream habitat is higher in Alternative 1 due to the increased amount of acres grazed but the

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likelihood is less than Alternative 2 due to Alternative 1 having a shorter grazing period and better flexibility in grazing patterns. Alternative 1 offers the better opportunity to increase and improve riparian area vegetation complexity and structure.

Alternative 2 – Under this alternative, one herd of 104 pairs would graze four separate pastures for approximately 3.5 week intervals. Three pastures on the west side of the allotment would not be grazed by cattle.

The number of cattle is fewer than Alternative 1 but the amount of area grazed is less and amount of time grazed is greater than Alternative 1. There will be no potential for direct or indirect effects upon RGCT or their habitat in the west side of the allotment (3 pastures closed) under this alternative. However, the east side of the allotment will receive heavy use by livestock even with reduced numbers due to less flexibility in grazing patterns and extended period of time spent in each pasture.

Alternative 3 – Under this alternative, there would be no grazing on the allotment.

There would be no potential for direct or indirect effects from grazing upon RGCT or stream habitat by this alternative.

Mitigation Measures:

Implementing Forest Plan Standards and Guidelines, and incorporating the USDA Region 2 Watershed Conservation Practices Handbook standards and design criteria, will minimize stream impacts. Although dates are set for pasture rotation, it is essential that livestock be moved to the next pasture or removed from the allotment when utilization guidelines are reached.

Mitigation measures include utilizing riders to disperse cattle when they begin to concentrate in riparian areas and placing salt on well-drained upland sites outside of the riparian areas.

Cumulative Effects All Alternatives

Cumulative effects include a combination of the past impacts of the Canon C&H Allotment and other ongoing or planned projects. Potential sources of cumulative effects are:

Past Human Actions.

The effects of the proposed action when added to past development projects and human activities, may create significant effects to the environment and potentially affect trout populations.

Past activities which have taken place, include timber sales, firewood cutting and various recreational activities including hiking, hunting, and fishing. In comparison to other areas on the Forest, the allotment is lightly roaded and receives moderate visitation as the result of its relative remoteness and lack of access.

Nonnative trout stockings have occurred in the past and may have impacted historical RGCT populations by increasing competition for space and food and may have resulted in the loss of genetic material due to interbreeding with other spring spawning

salmonids, such as the Yellowstone and Pikes Peak cutthroat trout and rainbow trout.

Ongoing and Foreseeable Future Actions.

Other ongoing or human activities which are scheduled or reasonably likely to occur in the foreseeable future, and which combined with the proposed action, may create significant effects to the environment and potentially affect trout populations.

Several motorized trails exist in the allotment in addition to developed and dispersed camping in the Ute Creek area. Several summer homes and dude ranches also exist in the general vicinity of Ute Creek. Sedimentation from roads and trails, fish passage barriers due to road culverts, and increased angler activity could affect RGCT populations.

The vast majority of recreational use comes from the motorized Lost Trail Creek system and Road 520, which is a 4WD road, which runs throughout the southern boundary of the allotment and is a common route for 4WD enthusiasts traveling across the Continental Divide.

Continued stockings of nonnative trout to maintain sport fishing could impact RGCT populations. RGCT do not compete well with nonnatives for food and space, can interbreed with spring spawning nonnative trout, and are susceptible to diseases, such as whirling disease, which can be transmitted during stockings or by anglers who do not properly clean and disinfect their gear.

None of the alternatives are precedent setting. The preferred alternative, and associated grazing activities will not automatically trigger other projects, which might have similar effects on this area of the environment. Any future actions, which may be proposed by the Forest Service, will be studied and an independent evaluation will be made of the cumulative effects of those actions.

Determination

Implementation of the proposed action, including mitigation measures and associated range improvements, was determined to May Impact Individuals but is not likely to cause a trend towards Federal listing or result in loss of viability in the planning area for the RGCT or its primary habitat either directly, indirectly, or cumulatively for Alternatives 1 and 2. Alternative 3 would result in a No Impact determination for RGCT.

Literature and habitat requirements for the Forest's TES species are available upon request.

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