Commercial
HORSE USE
Management Plan and
Environmental Assessment

Rocky Mountain National Park

Colorado

FINDING OF NO SIGNIFICANT IMPACT COMMERCIAL HORSE USE MANAGEMENT PLAN Rocky Mountain National Park, Colorado

In August of 1993, the National Park Service prepared an Environmental Assessment (EA) to analyze the effects of alternatives to aspects of managing commercial horse use. The various aspects analyzed include trail maintenance, noxious weed dispersal. Continental Divide rides, interior liveries, horse and hiker conflict, spatial distribution, length of rides, and string size. The EA considered the proposal and alternatives.

PROPOSAL

The park proposes to base the solicitation and issuance of any commercial use authorizations for horses on the following:

1) Require the concessioners to have a formal trail maintenance program funded by an increase in concessioner fees and administered with a trust, to rehabilitate and maintain heavy horse traffic trails. The NPS to utilize the volunteer program and Alpine Hotshot crew to supplement trail maintenance.

2) Require concessioners to use certified weed free forage after the Colorado State Program becomes fully operational, and when there is forage available from at least five growers.

3) Prohibit commercial horse use on trails within the tundra.

4) Require the concessioner to relocate Glacier Creek livery to a more environmentally acceptable location.

5) Require the concessioner to move the dormitory facilities at Glacier Creek and Moraine Park liveries to a location outside the park or to the Eagle Cliff NPS housing area; allow on site at each livery housing facilities for a maximum of four caretakers.

6) The NPS to provide visitor information on horse use by signing trails as “Heavy Horse Traffic” and by distributing an Equestrian Site Bulletin. Require the concessioners to remove horse manure from park trails within ¼ mile of each livery, and to disperse manure off certain sections of trails heavily used by hikers and horses.

7) Continue to permit the current number of authorized Horses at One Time (626) to enter the park for commercial riding.

8) Continue to allow commercial horse use to occur during the traditional operating season.

9) Continue to require a two-hour minimum horse ride.

10) Continue to keep the string size at a maximum of 20 separated by a minimum of 15 minutes.

These actions are consistent with the approved 1976 Master Plan. The purpose of the EA was to more fully describe and assess potential impacts of these management proposals.

ALTERNATIVES CONSIDERED

In addition to the proposal actions, the following alternatives were considered:

TRAIL MAINTENANCE: Status Quo, continue with the current commercial livery volunteer trail maintenance program.

NOXIOUS WEED DISPERSAL: Status Quo, continue to encourage, but not require liveries to obtain certified weed free hay; do not attempt to implement a program to control noxious weed dispersal as it relates to commercial horse operations.

CONTINENTAL DIVIDE RIDES: Status Quo, continue to allow unrestricted commercial horse trips over the divide during the peak summer season; allow commercial horse trips over the divide only when trails are free of snow, and limit the number of trips to three per week.

INTERIOR LIVERIES: Status Quo, continue to allow interior liveries to operate from existing locations with existing facilities; consolidate all interior operations to the Moraine Park Livery location; remove Glacier Creek Livery from the park; remove interior liveries from the park.

HORSE/HIKER CONFLICT: Status Quo, make no attempt to reduce the horse and hiker conflicts; designate and sign selected trails as “Primary Horse Use” zones.

SPATIAL DISTRIBUTION: Decrease the number of authorized Horses at One Time (HAOT) for the Moraine Park, Glacier Creek and National Park Village North Liveries to 1976 levels; limit number of trips each livery takes per season to 1976 level or last 10 year average, whichever is greatest, current levels of HAOT would not change; allow horses only in areas of low hiker use and stable soils; reallocate (87) HAOT to 1976 levels, and allow for use in Cow Creek/North Fork, Kawuneeche, and Wild Basin areas.

WINTER USE: Allow for winter and extended seasonal commercial horse use.

LENGTH OF RIDES: Allow for one-hour loop rides.

STRING SIZE: Reduce the string size from 20 to 12, with a separation between each string of 30 minutes.

There were also additional alternatives which were considered, but rejected including the elimination of commercial horse use from the park.

PUBLIC INVOLVEMENT

Preparation of the EA followed two scoping meetings held on September 2nd (Estes Park) and September 3rd (Grand Lake), 1992. Significant concern was

raised based upon the belief that the park was attempting to eliminate all, both private and commercial, horse use. This was repeatedly stated not to be the case. Because nearly all issues were believed by park management to be related to commercial horse use, the planning scope was limited to commercial use only. A draft plan was made available for public comment on August 3rd, 1993 until September 11, 1993. At the request of Hi-Country Stables, the comment period was extended until November 1, 1993. In addition to the plan and scoping meetings, the public was informed of the plan's alternatives through newsletters and press releases. A Coordinating Committee was established consisting of private and commercial horse interests and environmental organizations, and met two times with the planning team. Their purpose was to enhance communication with interested publics.

Notices were placed in local newspapers, and copies of the Plan/EA were sent to interested parties on the park distribution lists. A total of approximately **920** newsletters were mailed to individuals expressing an interest in the plan/EA informing them of the plan's availability.

As a result of the public involvement effort, a total of 179 letters were received for review and analysis. Of those, 43 letters included specific comments pertaining to the plan issues. General support for continued horse use was expressed in 115 letters, many of which responded because of a belief that horse use was to be eliminated. Fifteen letters were received concerning general horse use restrictions. The document was reviewed by the Colorado State Historic Preservation Office who found that the plan and EA adequately recognized the NPS's responsibility to consider the potential effects on historic properties. Legal counsel for the Estes Park Liveryman's Association and legal counsel for Hi-Country Stables cited numerous concerns on the plan/EA including lack of their involvement in the plan's preparation, lack of sufficient environmental impact data, need to increase authorizations to meet increasing riding demand, validity of the 1976 Master Plan, and the need to address commercial horse use only as part of a broader visitor use management plan.

The final plan/EA contains a complete summary of the comments received and the NFS response to those comments in Appendix F.

CONCLUSION

The proposals do not constitute an action that normally requires preparation of an environmental impact statement (EIS). The proposal will not have a significant effect on the human environment. Negative environmental impacts that could occur are minor and/or temporary in effect, indeed, a number of positive environmental impacts will occur, particularly to wetlands, and the alpine tundra. There are no unmitigated adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or. eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts were identified. implementation of the action will not violate any Federal, state, or local law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

APPROVED: _____ Jan 21 94
Date

Regional Director, Rocky Mountain Region

COMMERCIAL HORSE USE MANAGEMENT PLAN and ENVIRONMENTAL ASSESSMENT

ROCKY MOUNTAIN NATIONAL PARK COLORADO

Prepared by:	Georgina A. Pearson Natural Resource Specialist Rocky Mountain National Park	1-14-94 Date
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Approved by:	Homer L. Rouse Superintendent Rocky Mountain National Park	1-18-94 Date

EXECUTIVE SUMMARY

Purpose: To develop a Commercial Horse Use Management Plan and Environmental Assessment.

Responsible Organization: U.S. Department of the Interior. National Park Service. Rocky Mountain National Park, Colorado.

Background: Rocky Mountain National Park has received commercial horse use since its establishment in 1915. The number of authorized (interior/exterior) livery locations conducting tours within the park has fluctuated over the years, and is currently 19. Similarly, the number of commercial horse trips has fluctuated, and since 1976, has averaged about 41,600 each operating season. Eighty-eight percent of the commercial horse use occurs east of the Continental Divide. Approximately 80 percent (260 miles) of the park trails are open to both commercial and private horse use.

The park's Master Plan (1976) is a planning document that establishes guidelines for overall use, preservation, management, and development. The Master Plan identifies five issues related to equestrian use: 1) commercial horse use levels, 2) interior livery operations, 3) trail maintenance, 4) horse/pedestrian conflicts, and 5) the construction of additional concession facilities inside the park. Since 1976, these issues have not been adequately addressed, and are now significant problems.

The park is required to allow authorized concessioners a reasonable opportunity for profit. However, the park cannot meet unlimited increasing visitor demands, as population increases, for commercial visitor services and/or facilities. Park resources cannot withstand unlimited and unrestricted use without irreversible damage to the very values the park was established to protect. Commercial horse use is one of many visitor uses that must be managed in balance with the preservation of natural and cultural resources for the enjoyment of future generations.

Plan Goals:

1. To define the amount and location of commercial horse use which meets the Concessions Policy Act mandate as necessary and appropriate, and addresses the Master Plan issue statements/objectives.

2. **To allow for a quality** visitor experience via horseback **riding.**

3. To preserve and protect the park's wilderness character, which includes scientific, ecological, recreational, educational, historical, and aesthetic values.

4. To provide the park with a guide for managing commercial horse use.

5. To minimize horse and hiker conflicts.

6. To upgrade and maintain commercial horse use trails to NPS standards.

Issues and Selected Alternatives: (no priority order)

Trail maintenance: An objective OF the park's 1976 Master Plan is, "To give high priority to trail maintenance and reconstruction..." Many trails frequently used by commercially permitted horses are severely deteriorated. Many of these trails do not meet park trail standards. The current level of commercial horse use on trails has specific environmental consequences such as soil erosion, trenching, braiding, and trail widening. It also is acknowledged that hiker use contributes to trail impacts, but on a less severe scale. Trail rehabilitation and maintenance in heavy horse traffic areas is a great need and is extremely underfunded.

- *Selected alternatives:* Develop a formal trail maintenance program as a concession contract/permit requirement to perform routine and cyclic maintenance, and restoration/rehabilitation work on heavy horse traffic trails. Use the Park Volunteer Program and the NPS Alpine Hot Shot Fire Crew to supplement NPS trail maintenance in heavy horse traffic zones.

  Use of the volunteer program to perform trail maintenance is a widely accepted technique, but will require a large commitment by the NPS to organize and supervise projects. Use of the Alpine Hot Shots for trail maintenance is also an acceptable technique, but should not be relied upon because of the primary fire fighting duties of the Hot Shots in the summer. More funds are needed to increase the level of trail maintenance in heavy commercial horse traffic areas. Thus, the park will require horse concessioners using park trails to pay an increase in concessioner fees beyond the current level. The additional monies will be administered as a trust fund and dedicated to cyclic maintenance and rehabilitation of commercial horse used trails. Also, as part of standard operations, and separate from trust fund projects, routine trail maintenance will be required of concessioners.

  Noxious weeds dispersal: Research results outlined in this document show that horses contribute to the dispersal of noxious weed species in Rocky Mountain National Park. The park realizes that there are other ways noxious weeds may enter the park. Noxious weeds are non-native to the State of Colorado. These weeds may quickly move into new areas, and can cut-compete the native flora. Canada Thistle is a classic example of a noxious weed.

Selected alternative: Incorporate as mandatory for the permittees use of certified weed-free forage after the State Certification Program becomes fully operational, and there is grass forage available from a minimum of five growers. (Selected)

It is the park's responsibility to restore resources to their natural State, to preserve the wilderness resource, and to protect those resources in such a manner that can be used to provide an unmanipulated standard against which influences of ecosystem use and human impact on the environment can be measured. Control of noxious weed dispersal is one method in which park resources can be protected for the above purposes.

Continental Divide rides: Approximately 32 percent of the park is above treeline. Trampled tundra may take several hundred years to fully recover from human impacts. Horses increase the trampling and erosion damage on tundra due to the tearing action of the steel shoes, and the intense pressure of the horse load. Several studies have shown horse impacts to be much greater than hiker impacts (Weaver and Dale, 1978; Bainbridge, 1974; Finkleman, 1991; Hendee, Stankey, and Lucas, 1990). An experimental horse study by Nagy and Scotter (1974) found vegetation loss to be four to eight times greater from horse trampling than hiker trampling in a park environment similar to Rocky Mountain National Park, the Northern Rockies in Waterton Lakes National Park.

Selected alternative: Prohibit commercial horse use by any livery on trails within the tundra.

Note that commercial rides will be allowed to the Flattop Mountain hitchrack only from the East side of the park. Other trails that have hitchracks at timberline, such as Bluebird Lake, Lawn Lake, etc., will continue to allow commercial rides to those points, but not beyond. The interior concessioner has a preferential use area in the Bear Lake Road and Trail Ridge Road corridors. Consequently, any livery wishing to conduct a ride on trails accessible by these corridors must begin and end their ride outside the preferential right area.

Interior liveries: The park's 1976 Master Plan stated, "..between now and the 1979 expiration of the current contract, the disadvantages as well as the merits of the two interior livery operations will be observed. The final decision for retention or elimination of such service will be made at that time. Until then, they will operate at their present level." Other Master Plan statements include: "To maintain a policy of requiring all concessioner equipment storage buildings and housing, to be provided outside of the park boundary," and "...to permit no further expansion of concession operations requiring constructed facilities inside the park. Concessions must be controlled to reduce their environmental impact. Existing operations (as of 1976) to be eliminated when no longer needed within the park boundary." A multitude of correspondence exists concerning the need to take action regarding the riparian ecosystem in and around Glacier Creek Stables. All of the above issues have not been addressed in a park concession plan.

Selected alternative: Relocate Glacier Creek barn and corral from a wetland to an upland site within the park within three years from the date of issuance of a new contract. Move dormitory facilities at Glacier Creek and Moraine Park Liveries outside the park, or to the Eagle Cliff NPS housing area within two years from the date of issuance of a new contract. Allow housing facilities on site at each livery for a maximum of four caretakers to conduct emergency services only.

The dormitory structure with kitchen facilities at Moraine Park would be allowed to remain for caretaker housing. The Moraine Park barn and corral will remain in the present location.

Horse and hiker conflicts: The park's 1976 Master Plan stated as an objective, "... to determine what can be done to effectively minimize horse and pedestrian, use conflicts." Although the 1982 Trails Plan addressed horse/hiker conflicts as one issue, many recommendations were not implemented because of impractical alternatives, lack of funding, and lack of NEPA compliance. Horse/hiker conflicts continue to exist today.

Selected alternative: Provide information to visitors on horse use in the park by signing trails as "Heavy Horse Traffic," and by distributing an Equestrian Site Bulletin. Also, require liveries as part of the routine trail maintenance program, to remove manure from selected heavily used trail sections, and within ¼ mile from each livery on trails within the park.

Dispersal of manure from selected trails will be conducted once a week after the weed-free hay program is implemented. Complete removal of manure from trails within ¼ mile of liveries will be conducted twice weekly and be implemented immediately as a routine trail maintenance chore.

Educational approaches were chosen to modify visitor use behavior as a means to reduce environmental impacts, without more direct management techniques, such as trail closures to horses and/or hikers. The development of more trails (dual trails) for horse use only is not preferred because of the added resource impacts, and the additional funds and personnel needed to construct and maintain more trails.

Spatial distribution of commercial horse use: The park's 1976 Master Plan states, "No increase in horse use by concessioners or permits should be allowed." Use since 1976 as measured by overall park trips has remained relatively constant at approximately 41,600 trips.

Selected alternative: Status Quo. Continue to permit the current number of authorized Horses at One Time - HAOT (626) to enter the park for commercial riding purposes.

The park has determined that commercial horse use is an appropriate activity, and that the current level of HAOT is acceptable. In order to preserve resources and provide all visitors with a spectrum of recreational opportunities, ranging from modern and developed to primitive and undeveloped, the number of HAOT will not be allowed to increase beyond 626 for the entire park.

Winter use/extended seasonal use: Interest has been expressed to conduct winter commercial trail rides in Rocky Mountain National Park. Many park trails may be snow packed or wet for approximately eight months of the year.

Selected alternative: Status Quo. Continue to allow commercial horse use to occur in the park only during the operating season (from the second Saturday of May through the third Sunday of October).

The preferred alternative will preserve the resources during times when trails are covered with snow or ice. The park does not believe that this visitor service is necessary or appropriate in the winter. There are other opportunities for commercial horseback riding outside the park, on lower elevation trails.

Length of rides: Current park policy on the length of commercial horse rides is a minimum of two hours. Some concessioners that currently conduct one-hour rides outside the park have asked for permission to conduct one-hour rides in the park.

Selected alternative: Status Quo. Require a minimum of two-hour horse rides, and do not allow one-hour rides to occur within the park.

The park does not wish to increase the number and frequency of commercial horse rides in the park. Construction of one-hour loop trails would impact more resources and require more trail maintenance. There are sufficient one-hour ride opportunities that exist outside the park.

String size: Current park policy on the string size for commercial horse rides is 20. A visitor study conducted in the park in 1977 determined that 65 percent of hikers disapprove of large groups of rented horses on park trails.

Selected alternative: Status Quo. Keep string size at a maximum of 20 horses per ride, and keep each string separated by 15 minutes.

The planning process was conducted over a 1-1/2-year period that involved all divisions within Rocky Mountain National Park, Rocky Mountain Regional Office personnel, and a coordinating committee representing commercial, private, conservation, and academic interests. A newsletter was developed specifically to keep the general public informed of the planning process.

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APPENDICES

1.Purpose and Need for the Plan

1.1. Introduction

The use of horses for recreation, as well as transportation, is deeply entrenched in western history. This heritage led to the present status of horse use in Rocky Mountain National Park. Lodges, ranches and guest riding services were established in and around the Estes and Kawuneeche Valleys in the late 1800's (Buchholtz, 1983). Commercial horse use management began with park establishment in 1915. it is not the intention of this plan to direct the elimination of horse use in the park, but rather, to meet the intent and direction of legislative mandates, the park's 1976 Master Plan, and more specifically, the 1965 National Park Service (NPS) Concessions Policy Act. It is critical to note that this plan is part of the park's overall visitor use and commercial planning needs. The purpose of this plan is to address the primary commercial horse use issues currently affecting Rocky Mountain National Park.

A draft environmental assessment on horse use was developed in 1972 because commercial liveries desired to expand their operations (U.S.D.I., NPS, 1972). In 1975, a Horse Management Plan was approved by the park. The 1975 plan is not a *commercial* horse use plan, and does not address specific concession related issues. "Both the 1972 and 1975 plans recognize horseback riding as historic and desirable. The two plans state that horse use must be balanced with other uses to minimize its impact" (U.S.D.I, NPS, 1976). The park currently recognizes horse use as an appropriate and desirable recreational opportunity.

The park's Master Plan was approved in 1976. This document provides the park with management direction "for its overall use, preservation, and development" (U.S.D.I. NPS, 1976). The Master Plan is the basis for all other park plans and management actions. Although the Master Plan does not provide specific commercial horse use action plans, it does identify objectives regarding horse use, thus forming the basis of this plan. Table 1 describes the 1976 Master Plan objectives and their status.

Since 1976, six research projects have been completed specifically related to horse use in Rocky Mountain National Park. Many other national studies describe the environmental and sociological impacts of horse use.

In 1982, a Trail Plan was approved for the park that contains recommendations to reduce hiker and horseback rider conflicts, reduce impacts of trail use on the natural and cultural environment, improve trailhead access and parking, and determine the hiking and horseback riding experiences that are the most appropriate in the park (U.S.D.I., NPS, 1982). A Trails Management Plan, approved in 1984, is based upon the 1982 Trail Plan.

Table 1. 1976 Master Plan Clarification

1976 MASTER PLAN OBJECTIVES	CURRENT STATUS OF OBJECTIVES
1. "...between now (1976) and the 1979 expiration of the current contract, the disadvantages as well as the merits of the two interior livery operations will be observed. The final decision for retention or elimination of such service will be made at that time. Until then, they will operate at their present level."	1. The advantages and disadvantages of the two livery stables within the park are delineated in studies titled, "Impacts and Management Alternatives Concerning the Moraine Park and Glacier Creek Livery Stables in Rocky Mountain National Park" (Olmstead and Fox, 1979), and "Commercial Horseback Riding in Rocky Mountain National Park" (Trahan, 1977). A final decision has not been made on retention or elimination. The concessioner currently operates under an interim letter of authorization. The reported number of horse trips at Glacier Creek and Moraine Park Liveries has fluctuated over the past 18 years. Glacier Creek has gone from a low of 2854 trips in 1986 to a high of 8,653 trips in 1991, and has averaged 5,479 trips each year since 1976. Moraine Park has gone from a low of 5,221 trips in 1979 to a high of 10,930 trips in 1991, and has averaged 7.145 trips each year since 1976.
2. "No increase in horse use by concessioners or permits should be allowed." (also referred to as the Moratorium).	2. The statement, "no increase in horse use," has not been clearly defined. Since 1976, a "moratorium" on new permits, or the reissuing of lapsed permits, has been in effect, resulting in a decrease of permits/contracts from 25 (29 locations) in 1976 to 15 (20 locations) in 1993. Since 1976, approximately 93 horses authorized by permit have been reallocated to four liveries. Currently, the number of horses permitted to enter the park at any one time is 626. In the past 18 years, total park use, as measured by trips, varied from 36,299, to 52.194. with a yearly average of 41,600. This is nearly the same as the number of trips taken in 1976 (41,700 trips). Thus, current liveries have increased their use to absorb the business from previous liveries.

Table 1. (Continued) **1976** Master Plan Clarification

1976 MASTER PLAN OBJECTIVES	**CURRENT STATUS OF OBJECTIVES**
3. "To give high priority to trail maintenance and reconstruction..."	3. Trail maintenance and reconstruction is conducted by the NPS, yet it is underfunded relative to meeting trail standards in areas of high horse use. A Trails 10-Year Plan revised in 1991 identifies projects to be done and funds necessary to accomplish them. These projects include heavy horse traffic trails.
4. "... to determine what can be done to minimize horse and pedestrian use conflicts."	4. The 1982 Trails Plan identifies methods for reducing horse and • hiker conflicts: upgrading trails, rerouting trails, building dual trails, and separating users. This plan did not comply with the National Environmental Policy Act procedures, and could not be fully implemented. Limited trail funds have allowed for some 1982 Plan projects to be completed.
5. "To maintain a policy of requiring ail concessioner equipment storage buildings and housing, ... to be provided outside the park boundary."	5. Most livery operations continue to be based outside the park boundary. The Moraine Park and Glacier Creek concessions remain inside the park, including housing facilities.
6. "To permit no further expansion of concession operations requiring constructed facilities inside the park. Existing operations (as of 1976) to be eliminated when no longer needed within the park boundary."	6. Two facilities were added to the Moraine Park Livery, one dorm in 1984, and another dorm in 1990. These facilities were clearly authorized as temporary and removable structures. The park's intent repeatedly has been stated to relocate government housing to centralized locations near the periphery of the park, and to "require all concessioner storage buildings and housing to be provided outside of the park boundary (NPS,1976)".

In 1987, the park approved a Stock Management Plan. This plan is similar to the Horse Management Plan of 1975, listing stock regulations and areas open to horse use. The Stock Plan does not provide specific guidance on commercial horse use management. Other park plans that discuss horse use are: the Backcountry Management Plan (1984), the Statement for Management (1992), and the Resource Management Plan (1993, as amended).

In 1991, the park formally defined the need for a horse management plan by requesting special project funds from the National Park Service's Rocky Mountain Region to develop a plan that would address all horse use issues in the park. This planning process began in 1992. After much investigation and discussion, the scope of the plan was defined to address only commercial horse use management issues.

The development and approval of this plan was a park wide top priority for fiscal year 1993. This need is defined as a project statement in the Resources Management Plan (amended 1993). Also, the 1992 Statement for Management identifies horse use as a major visitor use issue. The Statement acknowledges that horse use continues to be extremely controversial and that issues are still unresolved. The Statement recommends that a horse plan be developed "to identify the numerous related issues, provide meaningful resource impact data, and recommend alternatives to address existing problems." It is the intent of this plan to meet these recommendations.

1.2.Significance of the Park

In 1909, Enos Mills, who led the campaign for a national park in the Estes Park area, described the resources that prompted the establishment of Rocky Mountain National Park:

Around Estes Park, Colorado, are mountain scenes of exceptional beauty and grandeur. In this territory is Longs Peak and one of the most rugged sections of the Continental Divide of the Rockies....in it are forests, streams, waterfalls, snowy peaks, great canyons, glaciers, scores of species of wild birds, and more than a thousand varieties of wildflowers. In many respects, this section is losing its wild charms. Extensive areas of primeval forest have been misused and ruined; sawmills are humming, and cattle are in the wild gardens! The once numerous big game has been hunted out of existence, and the picturesque beaver are almost gone (U.S.D.I., NPS, Statement for Management, 1992).

The significance of Rocky Mountain National Park lies in displaying, preserving, and availing for public use and enjoyment, some of the finest examples of the spectacular physiographic, biologic, and scenic features that typify the southern Rocky Mountains (U.S.D.I., NPS, Statement for Management, 1992).

The park's significance is nationally and internationally recognized. On October 26, 1976, the International Man and the Biosphere Program (MAB) designated Rocky Mountain National Park as a Biosphere Reserve. The purpose of MAB is to form a network of protected samples representing the world's major ecosystem types. Each reserve is devoted to the conservation of nature and scientific research, and provides an unmanipulated standard against which influences of ecosystem use and human impact on the environment can be measured (U.S.D.I., NFS, Statement for Management, 1992). The park provides such a standard for the Rocky Mountain Biogeographical Province.

In 1992, the park became part of the Rocky Mountain biogeographic region for the Global Climate Change Research Program. The program is a long-term series of projects designed to detect changes in vegetation, temperatures, precipitation, and overall climatic trends resulting from global warming.

The park's wilderness significance is recognized with over 239,800 acres currency recommended for inclusion into the National Wilderness Preservation System. This recommendation is yet to be acted upon by Congress. It is required by NFS Policy to manage proposed wilderness areas as if it were designated wilderness. As a result of the 1980 park boundary change, 2,917 acres of the adjacent Indian Peaks Wilderness is now within Rocky Mountain National Park.

On October 30, 1986, Congress established the Cache La Poudre Wild and Scenic River. The river begins within Rocky Mountain National Park.

The North St. Vrain River was placed on the Nationwide Rivers Inventory in 1987. Rivers on the inventory were found eligible for potential inclusion in the National Wild and Scenic Rivers System. A decision has not been made on the North St. Vrain. Presidential directive requires Federal agencies, as part of their normal planning and environmental review process, to take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory (U.S.D.I., NPS, Statement for Management, 1992).

1.3.Legal and Administrative Considerations

Rocky Mountain National Park's enabling legislation states that park regulations should be "primarily aimed at the freest use of the park for recreation purposes by the public and for the preservation of the natural conditions and scenic beauties thereof (U.S.D.I.. NPS, Rocky Mountain National Park Enabling Legislation, 1915)."

The NPS Organic Act sets forth the management philosophy: "To conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations... (Organic Act, 1916)."

The Secretary of Interior in 1918, Franklin K. Lane, wrote a letter to the first Director of the Park Service, Stephen T. Mather, stating that NPS administrative policy should be based on three principles:

First, that the national parks must be maintained in absolutely unimpaired form for the use of future generations, as well as those of our own time;

second, that they are set apart for the use, observation, health, and pleasure of the people; and third, that the national interest must dictate all decisions affecting public or private enterprise in the parks (U.S.D.S., NPS, Management Policies 1:5, 1988).

The NPS Concession Policy Act is specific concerning in-park concessions. “It is the policy of Congress that such development shall be limited to those that are necessary and appropriate for public use and enjoyment of the national park area in which they are located and that are consistent to the highest practicable degree with the preservation and conservation of the areas (Concession Policy Act, 1965).”

As “Federally conducted programs,” concession operations are mandated by the Architectural Barriers Act of 1968 and Section 504 of the Rehabilitation Act to make facilities, programs, and services accessible to persons with disabilities. The Americans With Disabilities Act (ADA) does not affect the park directly because the NPS is already required to meet accessibility goals by the existing laws just mentioned. However, as private entities providing services to the public, concession operations also are covered by the ADA as “places of public accommodation.” It does not appear that the Architectural Barriers Act the ADA require that horseback riding be provided; but, the NPS believes that this service meets the spirit of this legislation by providing disabled park visitors with an alternative way to experience the park, and thus is appropriate. The accessibility legislation requires that facilities constructed and operated by concessions be such that they meet the standards of this legislation.

The 1972 Clean Water Act, Section 404, provides indirect wetlands protection through a suite of nationwide water quality protection provisos designed to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” This affects the high-quality class 2 water designation for Glacier Creek, meaning no degradation of water quality should occur.

In 1977, Executive Order 11990 “Protection of Wetlands,” ordered Federal agencies to “... avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative ...” The executive order established a mandate for the NPS and other Federal agencies to “... preserve and enhance the natural and beneficial

values...” of wetlands and to minimize impacts to them when no practicable alternative to the proposed action exists.

The Redwood Act further defined the NPS general authorities to specifically mandate all park units be managed and protected “... in light of the high public value and integrity of the National Park System ...” and that no activities should be undertaken “... in derogation of the values for which these various areas have been established, ...” except where specifically authorized by law (Act to Expand Redwood National Park, 1978).

The Federal Noxious Weed Act of 1974 was amended in 1990 to specifically address the management of undesirable plants on Federal lands. It directs Federal agencies to designate an office or person adequately trained in the management of undesirable plant species to develop and coordinate an undesirable plants management program on Federal lands under the agency’s jurisdiction. The amended act further states that, “Federal agencies, as appropriate, shall enter into cooperative agreements with State agencies to coordinate the management of undesirable plant species on Federal lands. A Federal agency is not required under this section to carry out programs on Federal lands unless similar programs are being implemented on State or private lands in the same area” (Federal Noxious Weed Act, 1990). The weed act affects the management of horse use in the park because of the relationship between the type of forage used by horses and the dispersal of weeds along park trails from horse manure.

The State of Colorado has also recognized the urgency in giving attention to the management of weeds in forage. In 1984, the Colorado Undesirable Plant Management Act was passed, then amended in 1990 to include Article 5.5, the “Colorado Weed Management Act”. This act gives implementation authority to county commissions, municipalities, State and Federal agencies. The Legislature declared, “There is a need to ensure that all the lands of the State of Colorado, whether in private or public ownership, are protected by and subject to the jurisdiction of a local government empowered to manage undesirable plants as designated by the State of Colorado and the local governing body.” The Act further states that “on or before January 1, 1994, the legislative council shall survey those counties that include significant amounts of Federal land to determine the level of cooperation and compliance by the Federal government with this article.” These conclusions of the council are to be reported to the general assembly on or before January 15, 1994. (Colorado Weed Management Act, 1990). The Colorado Weed Management Act was further amended in 1993 when a new article (35-27.5-101) was added titled the “Weed Free Forage Crop Certification Act.” The Act creates an optional weed-free crop certification program. The rules for the certification program are currently being developed and will be adopted as part of the 1993 Act.

Other Federal laws to which the park must adhere in the development of the plan are: the National Environmental Policy Act (1969. as amended); the 1964 Wilderness Act; Historic Preservation Act (1966, as amended); and the Endangered Species Act of (1973, as amended). National Park Service management directives must also be adhered to, such as the Natural Resource Management Guideline, NPS-77 (1991), and NPS Management Policies (1988).

1.3.1. Necessary and Appropriate Commercial Use

Within the framework of any concession planning process, a fundamental issue to address concerns what is necessary and appropriate for public use and enjoyment of a National Park Service area. As defined by the Concession Policy Act:

It is the policy of the Congress that such developments shall be limited to those that are necessary and appropriate for public use and enjoyment of the national park area in which they are located and that are consistent to the highest practicable degree with the preservation and conservation of the area. (Concession Policy Act, 1965).

The terms “necessary and appropriate” were not defined in the legislative history of the park. However, both the 1916 Organic Act and the 1965 Concession Policy Act place emphasis on the conservation and preservation of National Park System resources, while at the same time providing for their use in a prudent and unimpaired manner. The Concessions Policy Act reaffirms the fundamental policy of preservation in the National Park System.

For the purpose of carrying out the Concession Policy Act, the following definitions apply:

Necessary: required to meet the needs of the visitor/public.

Appropriate: compatible with the park’s natural, cultural, and/or recreational resource(s), recognizing the purpose of the established area. (U.S.D.I. Concessions Management Guideline, 1986).

The decision that a concession is necessary and appropriate is reserved to the Superintendent and must be consistent with approved plans. Horseback riding has been deemed as a necessary and appropriate use of the park.

1.3.2. Commercial Services Authorized:

The Concession Policy Act of 1965 states,

.....the Congress hereby finds that the preservation of park values requires that such public accommodations, facilities and services as have to be

provided within those areas should be provided only under carefully controlled safeguards against unregulated and indiscriminate use, so that the heavy visitation will not unduly impair these values and so that development of such facilities can best be limited to locations where the least damage to park values will be caused.

Commercial use of the backcountry will be authorized as any other concession service, ie., on the basis of need following appropriate planning and assessment of the impact on the environment. If adequate facilities exist or feasibly can be developed by private enterprise outside the park boundaries to serve the park visitor's needs for commercial services, such facilities shall not be authorized for development within the park.

The services provided by commercial liveries offer a unique experience for recreationists, and for a segment of visitors who may otherwise be limited from seeing the park's backcountry.

Livery services are provided through concession authorizations which define use as: guided, saddle stock tours and pack services, without the provision of food service, within the boundaries of Rocky Mountain National Park.

It is believed that the level of service, approximately 41,600 trips annually, provided by existing concessioners adequately meets the needs of park visitors. Therefore, the maximum level of service desired is provided by current authorizations, and *the park will issue no additional contracts/permits for this activity. The existing number of authorizations (15) which permit services to be provided in the park from specific locations (20) will be the maximum permitted in Rocky Mountain National Park.*

Regulations contained in 36 CFR § 51.7 guide the handling of sale/transfer of concession contracts/permits.

36 CFR §51.7(a) states, "Concession contracts, or operations authorized thereby, controlling interests therein, or assets of a concessioner, may not be transferred, sold, assigned or encumbered in any manner, including, but not limited to stock purchases, mergers, consolidations, reorganizations, mortgages, liens or collateralization, <u>except with the prior written approval of the Director.</u> Such approval is not a matter of right to the concessioner. Transfers, sales, assignments, or encumbrances consummated in violation of this requirement shall be considered null and void by the Director and a material breach of the contract resulting in termination of the contract for cause."

36 CFR §51.7(d) states, in part, “The Director may choose to disapprove a transaction as described herein in his or her discretion or may place appropriate conditions on any approval, including modification of the terms and conditions of the concession contract, as a condition of approval. The Director shall not approve a transaction that the Director considers may result in decreased quality of service to the public, the lack of a reasonable opportunity for profit over the remaining term of the contract, or in rates higher than comparable rates being charged to the public. Further, the Director shall not approve a transaction if a significant portion of the purchase price is attributable either directly or indirectly to intangible assets or values emanating from the privileges granted by the concession contract (including, but not limited to, a right of preference in contract renewal, user days, allocated entries or trips, and low fees and charges).”

Contracts/permits that are terminated, for cause or are voluntarily relinquished by the operator, may be advertised through a competitive bid process. This is not an automatic process, and at no time will the number of authorizations exceed **15.**

Since authorizations are issued specific to a location, the inability of an operator to provide service from the authorized location would constitute a material breach of contract resulting in termination. In that event, the NPS may seek a new operator to provide services from the authorized location through competitive bid. If no satisfactory bids are received to conduct services from the authorized location, consideration may be given to establishing operations in a new location. The Superintendent will exercise complete discretion in this matter. Establishing operations in a new location will only be recommended if the master plan goals relating to resource protection, concession facilities, and horse/hiker conflict can be **s**atisfactorily addressed, and if issuing a new permit would satisfy a need to maintain a desired service level.

1.4.Plan Goals

1. To define the amount and location of commercial horse use which meets the Concessions Policy Act mandate as necessary and appropriate, and addresses the Master Plan issue statements.

2. To allow for a quality visitor experience via horseback riding.

3. To preserve and protect the park’s wilderness character, which includes scientific, ecological, recreational, educational, historical, and aesthetic values.

4. To provide the park with a guide for managing commercial horse use.

5. To minimize horse and hiker conflicts.

6. To upgrade and maintain commercial horse use trails to NPS standards.

1.5.Specific Issues

Several critical commercial horse management issues exist in the park and include:

Trail maintenance: An objective of the park's 1976 Master Plan is, "To give high priority to trail maintenance and reconstruction..." Maintenance is lacking on trails frequently used by liveries. Many of these trails do not meet park trail standards. Current extensive commercial horse use on trails causes soil erosion, trenching, braiding, and user conflicts. The heavy horse traffic areas of primary concern are in the Aspenglen/ Little Horseshoe Park, Moraine Park/Upper Beaver Meadows, and Glacier Basin areas.

Noxious weeds dispersal: Research by Mary Benninger indicates that horses contribute to the dispersal of noxious weed species in Rocky Mountain National Park. "...Horse scat collected along trails and at stables contains viable seeds, which demonstrates that horses are dispersal agents for plant species in Rocky Mountain NationalPark."

Continental Divide rides: Approximately 32 percent of the park is above treeline. Trampled tundra may take several hundred years to recover. Horses increase the trampling damage on tundra due to the tearing action of their steel shoes, and the intense pressure of their weight.

Interior liveries: The park's 1976 Master Plan stated, "..between now and the 1979 expiration of the current contract, the disadvantages as well as the merits of the two interior livery operations will be observed. The final decision for retention or elimination of such service will be made at that time. Until then, they will operate at their present level." Other Master Plan statements include: "To maintain a policy of requiring all concessioner equipment storage buildings and housing to be provided outside of the park boundary," and, "to permit no further expansion of concession operations requiring constructed facilities inside the park. Existing operations (as of 1976) to be eliminated when no longer needed within the park boundary." Final decisions on the interior livery issues are long overdue.

Horse and hiker conflicts: The park's 1976 Master Plan stated as an objective, "... to determine what can be done to effectively minimize horse and pedestrian use conflicts."

Spatial distribution of commercial horse use: The park's 1976 Master Plan stated, "No increase in horse use by concessioners or permits should be allowed." This statement has not been clearly defined.

Winter use/extended seasonal use: Some concessioners have expressed an interest to conduct winter trail rides in Rocky Mountain National Park.

Length of rides: Current park policy on the length of commercial horse rides is a minimum of two hours. Some concessioners have asked for permission to conduct one-hour rides within the park.

String size: A visitor study conducted in 1977 in the park determined that 65 percent of hikers disapprove of large groups of rented horses on park trails. The current park string size is 20.

2. Affected Environment

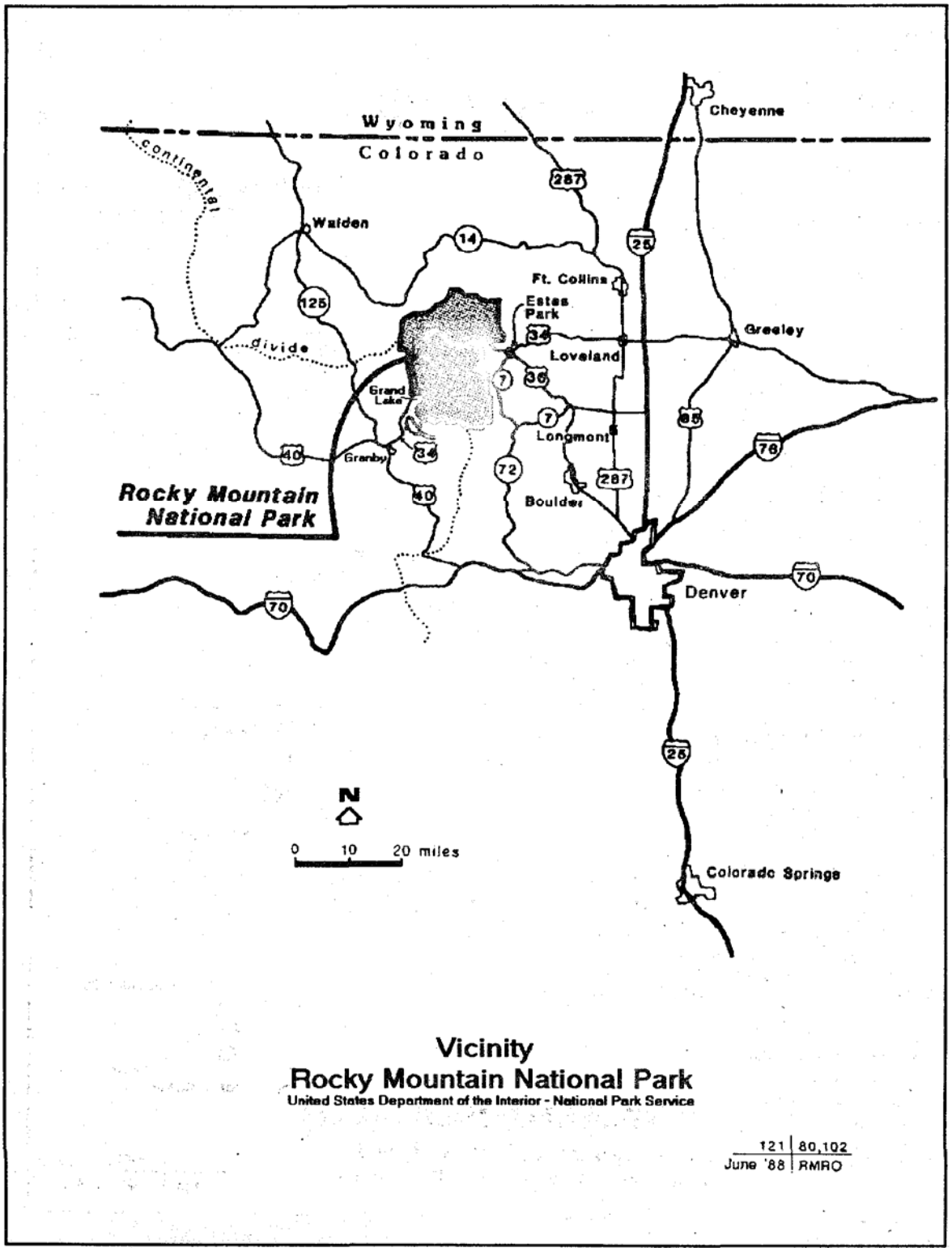
2.1. Location and Access

Rocky Mountain National Park encompasses 266,714 acres and is located in the north central portion of Colorado (Figure 1). The park lies within Colorado's Larimer, Boulder, and Grand counties. The towns of Allenspark, Glen Haven, Estes Park, Meeker Park, and Grand Lake are found along its borders (Figure 2). Land ownership around the park is a mixture of State, local, private, and Federal. About 62 percent of the park boundary borders National Forest land, with 70 percent of the Forest lands managed as wilderness. The rest of the park boundary borders subdivisions, summer camps, and burgeoning town populations.

The park is easily accessible from the Denver metropolitan area, some 65 miles to the southeast. Interstates 25, 70 and 76, which converge in Denver, provide rapid access for visitors coming from all regions of the United States. Because of Rocky Mountain National Park's popularity and its relative accessibility, visitation is nearly three million annually. This is approximately the same visitation Yellowstone National Park receives, although Rocky Mountain National Park is approximately eight times smaller than Yellowstone.

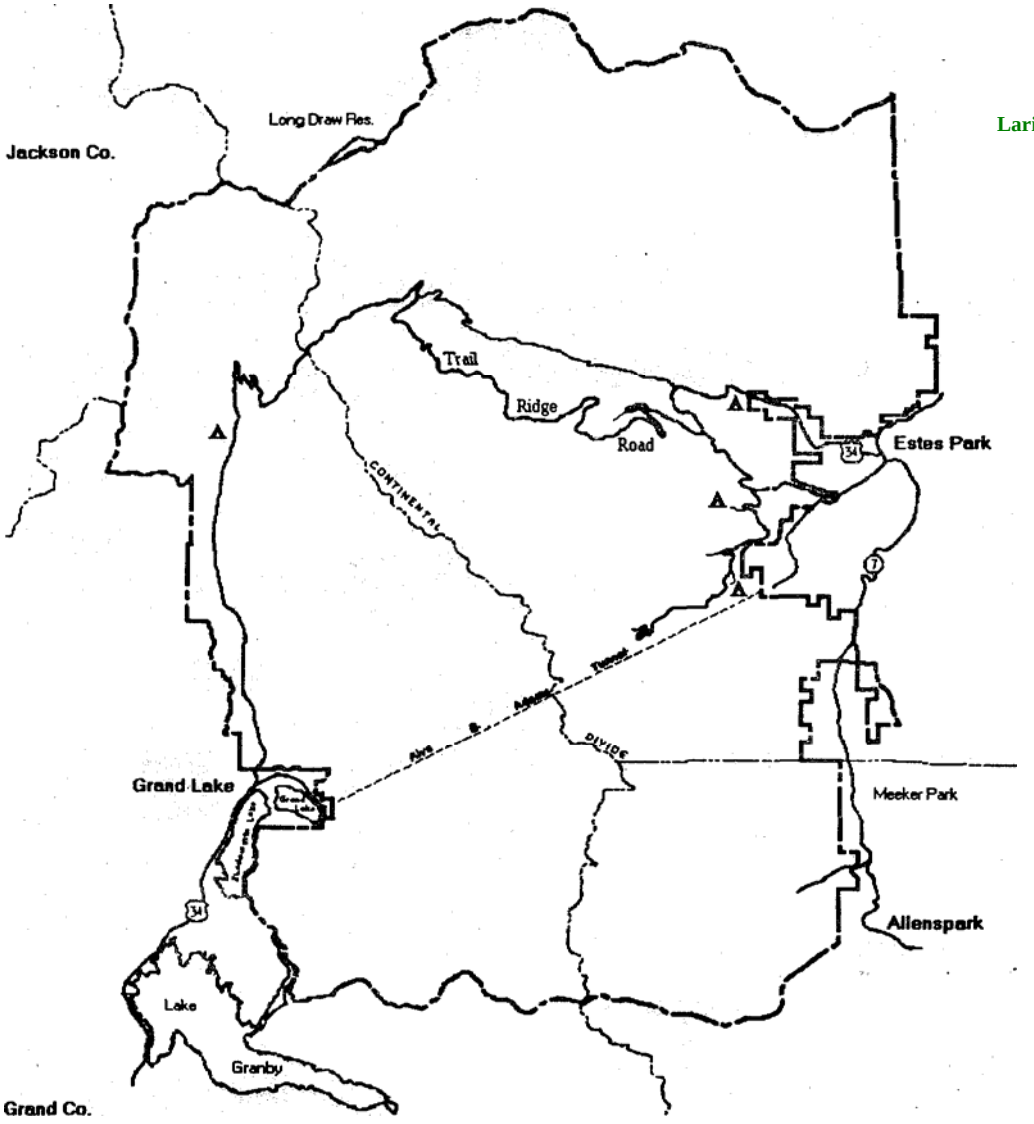
2.2. Description of the Environment

The park features an ecologically typical and exceptionally scenic portion of the Southern Rocky Mountains. The mountains are formed by a series of granitic batholiths intruded into precambrian micashists and pegmatite. The eastern slope is characterized by steep cliffs and U-shaped valleys as altered by local pleistocene glaciation. The east slope sits in a slight rain shadow receiving approximately 15



Vicinity
Rocky Mountain National Park
United States Department of the Interior - National Park Service

121 | 80,102
June '88 | RMRO



_____park boundary
_____roads

▲campgrounds

N

▲

l----------5 miles

Boundary Map

Rocky Mountain National Park

U.S. Dept. of the Interior - Nat'l. Park Service

rt-001
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inches of precipitation annually, and high winds throughout the winter. In the west, the mountains fall away more gradually to the Kawuneeche Valley. The west slope receives approximately 20 inches of precipitation annually with deeper

snows in winter (U.S.D.I., NPS, Fire Management Plan, 1992).

The Continental Divide bisects the park into east and west subunits, each with different vegetation patterns. The east unit features a mixture of dry and wet grasslands, montane forests, lodgepole pine, spruce-fir, and tundra. The west unit is more elevated and moist, lacking dry valleys and montane forests. It contains primarily lodgepole pine, with spruce-fir and tundra.

Nearly one-third of the park is over 11,000 feet in elevation (alpine tundra). The summit of the Rockies presents an almost impenetrable barrier of rock and ice. In the alpine tundra, precipitation falls as snow, and high winds scour areas free of snow (U.S.D.I., NPS. Fire Management Plan, 1992).

Park soils are relatively infertile and sandy with poor development from decomposed granitic substrates. Bottom and swale areas show the best soil development (U.S.D.I, NPS, Environmental Assessment Natural Fire Plan. 1974).

2.3. Guest Ranches and Commercial Horse Use History

Guest ranch and guest lodge operations in and around Rocky Mountain National Park have been a part of the “area’s rustic western flavor” since before park establishment. Stead’s Ranch, formerly in Moraine Park, began operation in the 1870s by the Sprague family. In 1902, the Wind River Lodge was opened, followed by Moraine Lodge in 1910, and the Brinwood (current site of the Moraine Park Stables) in 1911 (Buchholtz, 1983). On the west side, ranching and homesteading were growing as well. Squeaky Bob’s “Hotel de Hardscrabble” was one of the first dude ranches established in the Kawuneeche Valley in the Sate 1800’s (Buchholtz, 1983). Holzwarth’s Never Summer Ranch, Green Mountain Ranch and the Onahu Guest Ranch also operated on the west side in the early 1900’s. Today, many guest ranches and lodges provide use of their facilities and services, including horseback riding in the park, exclusively to their paid guests.

A slightly different type of transportation/recreational opportunity also existed in the Estes Park area prior to the park’s establishment. Commercial liveries were used primarily as a transportation/recreation vehicle. They differed from the ranches and lodges because they were not exclusively for guest use, and they did not provide such amenities as lodging, food, or any other special recreational opportunities. Some of the early 1900s commercial liveries were the Dunraven, Stanley, and Hupp in Estes Park. Today, these commercial horse operations exist within and outside park boundaries. Some liveries that conduct business outside the park provide food services with their breakfast and steak fry rides.

In the 1940s and into the early 1950s, about 50 guest ranch and commercial liveries, with approximately 2,000 head of horses, operated in the Estes Park area and used the park for commercial tours (Havens, 1993). By 1976, many ranches located inside the park were purchased by the National Park Service, and others discontinued their operations, thus reducing the number of commercial livery locations to 29 for both the east and west sides. Current authorizations are for 18 locations (Figure 3).

There were no permits or horse use limits in the early years of park commercial horse use. Special use permits were granted in the 1960s. In 1991, commercial liveries were authorized under concession permits.

2.4. Current Horse Use

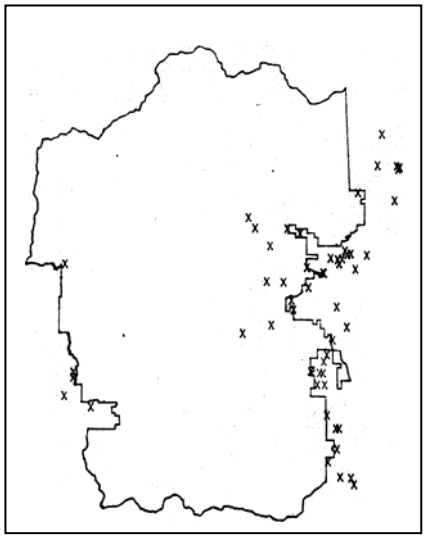
Horse trips and horses at one time can measure use. The park has not clearly defined how these units of measurement will be used to manage horse use. Commercial horse use statistics for the park as measured by trips exist since the mid-70s. In 1976, the park began to formally require liveries to report horse trips and trails used per month. Every year thereafter, reporting accuracy by the liveries has improved. These reports are the best information available to the park.

In the past 18 years, total park use, as measured by trips, varied from 36,299, to 52,194, with a yearly average of 41,600 (Figure 4). The “moratorium” does not allow additional concessioner permits to be issued, and has helped keep *Parkwide* use near the 1976 level of 41,700 trips. For the past 10 years, the combined months of June, July, and August have averaged approximately 36,500 trips (Figure 5). The number of trips taken on a trail varies dramatically, from a couple on the Finch Lake Trail to over 10,000 on the Little Horseshoe Park Trail. The length of trips also varies from two-, four-, six- and eight-hour rides. Less than 10 backcountry permits per year are issued to liveries.

LIVERY LOCATIONS

Figure 3

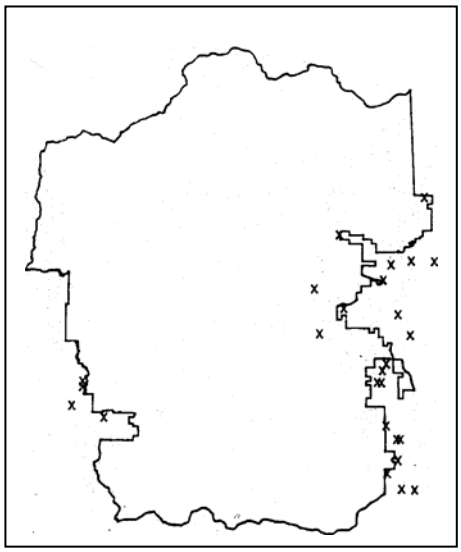
1953



1 0 1 2 3 4 STATUTE MILES

50 LIVERIES

1976



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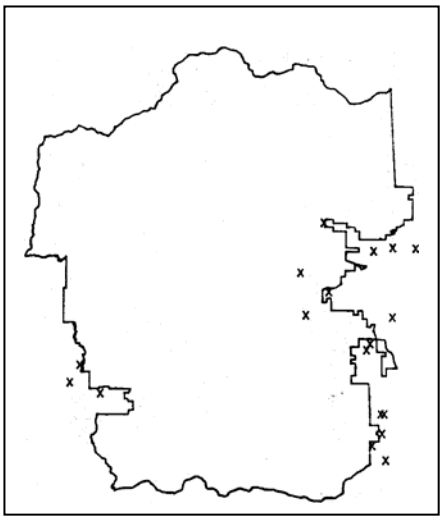
29 LIVERIES

1993



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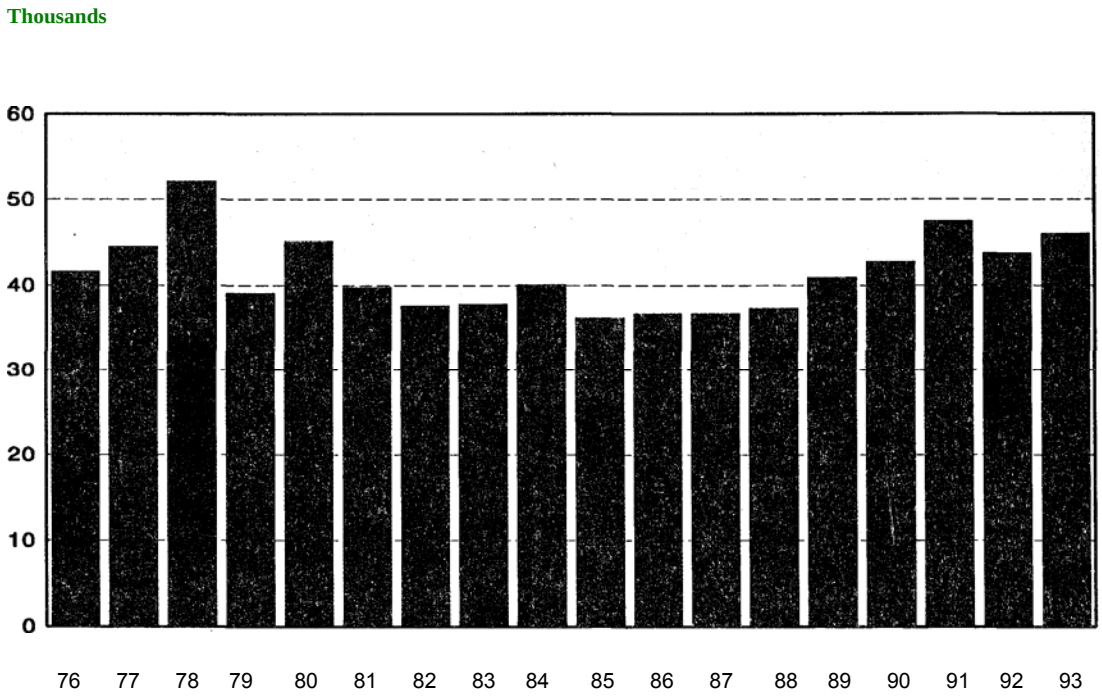
20 LIVERIES

HORSE USE BY YEAR, 1976 - 1993

Rocky Mountain National Park



Horse Trips	41.7	44,625	52,184	39.16	45,15	39.823	37.687	37,906	40,16	36,299	36,822	36.83	37.348	41.023	42,8	47.542	43.832	46.082

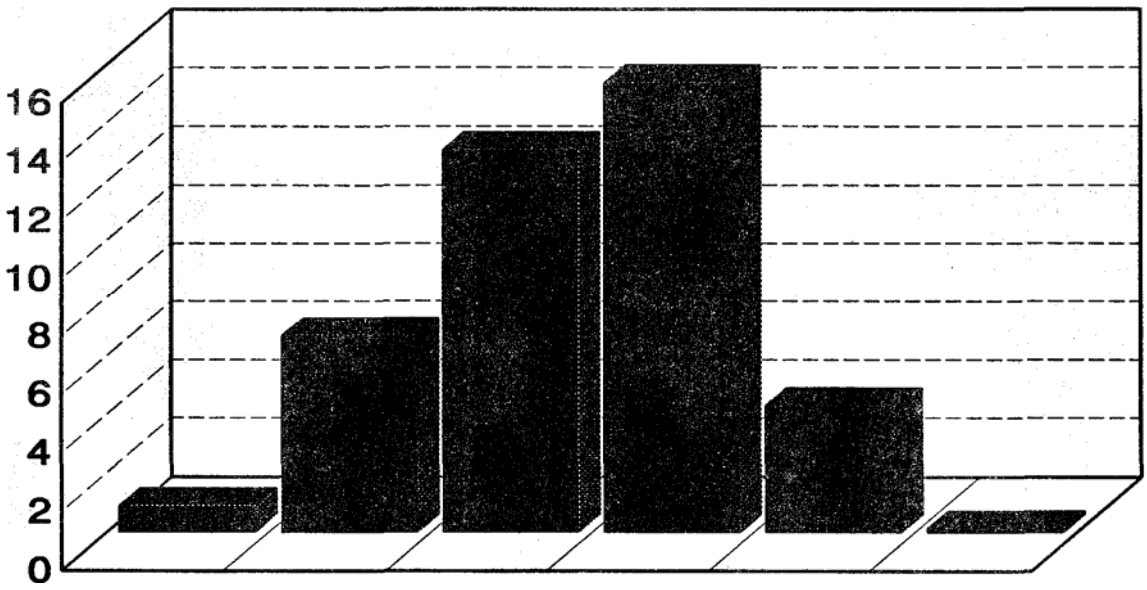
Complied from concessioner reported statistics. Yearly average over 18 years 41,600.

Figure 4

AVERAGE CONCESSION HORSE USE BY MONTH, **1983-1993**

Rocky Mountain National Park

Thousands



	MAY	JUN	JUL	AUG	SEP	OCT
Horse Trips	**0.921**	**6,741**	**13,122**	**15,392**	**4,355**	**0,166**

Complied from concessioner reported statistics. The minimum and maximum range from zero in October for many years to 19,006 rides in August of 1993.

There are ten less authorized livery locations today than in 1976, yet use remains relatively consistent. This suggests an overall use increase by current permitted liveries. Livery operators comment that they are currently operating at maximum capacity. Total commercial horse trips by each livery from 1976 to 1993 may be found in Appendix A. Currently, the number of horses permitted to enter the park at any one time is 626, compared to 731 in 1976 (Table 2).

Redistribution and increases in individual livery use have impacted the park in areas of already concentrated hiker use. In high visitor use zones, such as Moraine Park, Glacier Basin, Bear Lake, Aspenglen and Little Horseshoe Park, the "moratorium" has not been effective in limiting the sociological and ecological impacts on park visitors and natural resources. (Refer to Figure 6 for heavy horse traffic areas.) Horse trips originate from inside as well as outside the park. Some liveries have informally agreed to coordinate trail rides during certain days of the week, such as in the Tahosa Valley area, while others may periodically overlap trail use, such as in the Moraine Park area. Liveries also tend to have standard trails they use for their standard two-and four-hour rides. For example, the Beaver Mountain Trail is used almost exclusively by Moraine Park Livery.

2.5. Current Management of Commercial Liveries

The park does not have a concessions management plan to guide the overall management of commercial uses in the park. Commercial liveries are managed by the authority of the Concessions Policy Act of 1965, Title 36 of the Code of Federal Regulations, NFS Management Policies, and Special Directives.

The 1987 Stock Management Plan refers to regulations and stock use in the park. These regulations, along with allowances, are contained in the Equestrian Site Bulletin, which is available through the park information office.

The Superintendent's Compendium: 36 CFR 2.16, April 1993, describes restrictions for pack stock use (Appendix B). The Superintendent reserves the right to close any park trail at any time for health and safety purposes, and/or for the protection of park resources. Approximately 80 percent of the park trails are open to commercial horse use.

Commercial liveries are most closely managed through their contracts, permits and operating plans. Livery operators are authorized to provide visitor services through their operating plan. The park has one horse concession contract with Hi-Country Stables, which operates in two locations. Moraine Park and Glacier Creek. Hi-Country Stables has a preferential right to provide commercial livery services from Glacier Creek and Moraine Park liveries, and from locations served along the Trail Ridge, Bear Lake, and Moraine Park-Fern Lake roads. Access to trails that pass through these preferential right areas is allowed *by the NPS* to other permittees,

TABLE 2. PERMITTED HORSES AT ONE TIME (HAOT) -- 1976 VS. 1993

LIVERY	1976 PERMITTED HAOT	1993 PERMITTED HAOT	NET CHANGE	COMMENT
Sombrero, Allenspark	10	10	0	
Aspen Lodge	15	15	0	
Cheley Camp(Tris End)	19	19	0	Trails End Boys and Girls Ranch Camp.
Cheley Camp (Main)	19	19	0	Main Camp.
Elkhorn	20	20	0	Authorization suspended since 1991. Will be offered for renewal.
Glacier Creek	36	70	34	Includes 10 for wranglers; an additional 10 for rotation; total 80 in Corral.
Sombrero, Glen Haven	27	27	0	
Lane Guest Ranch	10	10	0	
Meadow Mt. Ranch	16	16	0	
Meeker Park Lodge	16	16	0	
Moraine Park	50	80	30	Includes 10 for wranglers; an additional 10 for rotation; total 90 in Corral.
National Park Village	16	30	14	Increase occurred in 1977 at request of operator.
Silver Lane	24	24	0	
Sombrero, Grand Lake	60	60	0	
Wild Basin	30	30	0	
Winding River Ranch	10	10	0	Permit not renewed, 1993, but 10 horses will be reallocated.
Winding River Resort	25	25	0	
Wind River Ranch	25	40	15	Increase of 15 horses for use on Baldpate and Lily Lake lands acquired in 1992.
YMCA of Rockies	70	70	0	
Longs Peak Inn	30	0	-30	Permit relinquished. May, 1992.
Sombrero, Estes Park	35	35	0	
Lazy H Guest Ranch (Formerly Ferncliff)	0	0	0	Permit reinstated in 1984 & 1985 for 10 and 15 horses respectively; permit not renewed 1989.
Indian Head Ranch	30	0	-30	Permit not renewed, 1988.
Camp St. Malo	17	0	-17	Camp closed for renovation, 1985; permit not renewed.
Sun Val. Guest Ranch	10	0	-10	Requested permit to be canceled in July, 1986.
Double JK Ranch	15	0	-15	Sold to Salvation Army, 1987; permit not renewed.
Rustic Stables	28	0	-28	Permit not renewed, 1980.
Arapaho Valley Stable	12	0	-12	Operated out of Granby from 1967-1980 when park boundary changed.
Beaver Point	28	0	-28	Cancelled in 1976 from Hanks and transferred to Mr. Marvin Sickler. Marvin Sickler
Chalet, Estes Park	10	0	-10	Permit not transferred, 1979.
TOTALS	731	626	-87	"• THE TOTAL HAOT FOR 1993 WILL REMAIN THE SAME. This is a use limit.

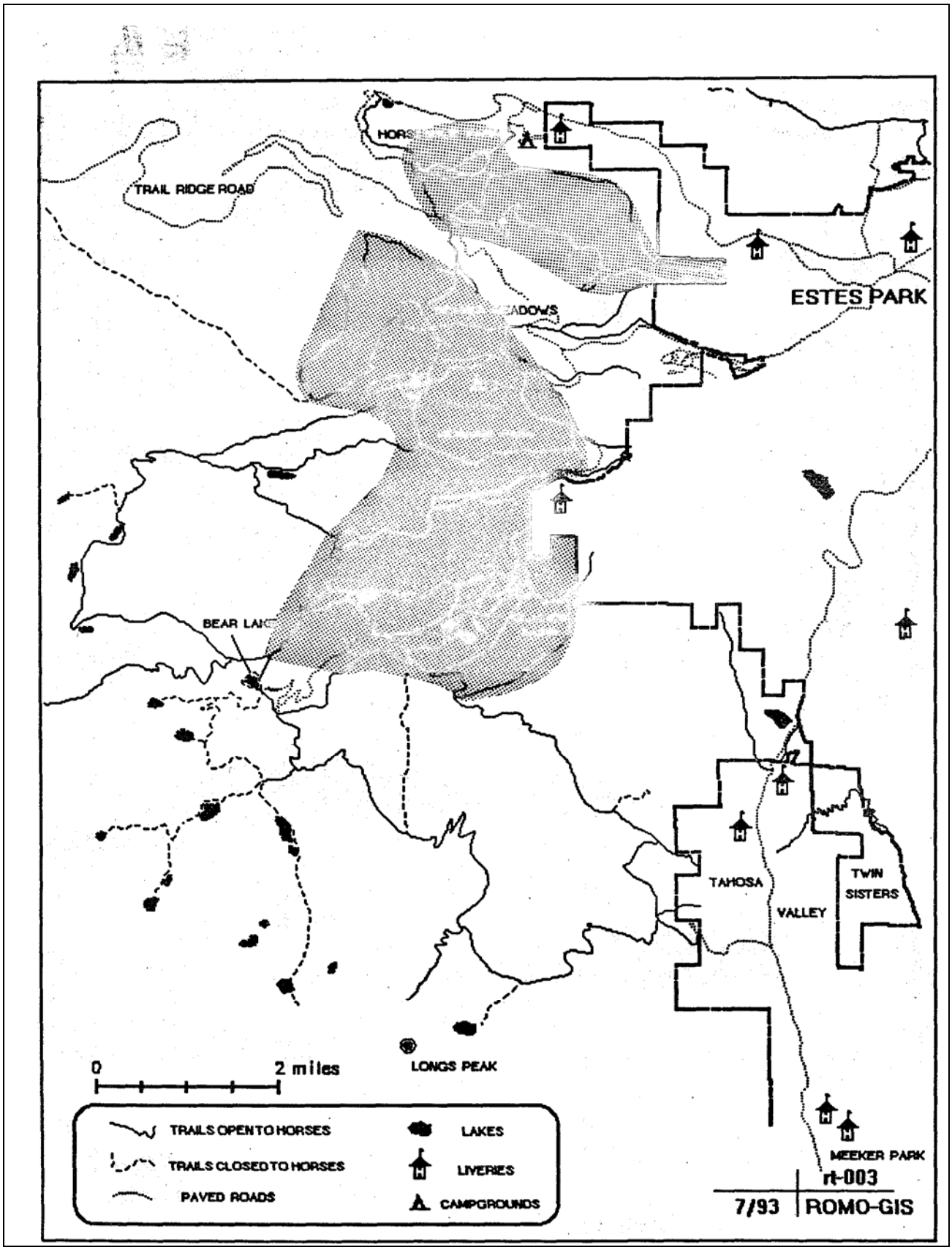


Figure 6 **Heavy Horse Traffic Areas (shaded)**

providing the ride originates and terminates outside the preferential right areas. This has the effect of somewhat limiting commercial horse use to only Hi-Country Stables in some of the heavy visitor use areas, such as Bear Lake. Liveries may transport stock over park roads, except within the preferential right areas, but most do not. All commercial rides are

required to obtain a backcountry permit for overnight use, and are allowed to camp in designated stock sites.

Liveries are required to report monthly trail use and horse trip statistics. Currently, the horse string size is limited to 20 per trip with a 15-minute separation. All operation requirements and conditions are outlined in each livery's contract or permit and operating **plan.**

2.6. Horse Impact Characteristics

2.6.1. Natural Resources

Horse use in Rocky Mountain National Park is contributing to adverse impacts on the natural environment and ecosystems. Trail braiding, erosion, trenching, and impacts to sensitive riparian and alpine ecosystems are observed concerns expressed by park professionals, visitors, and researchers. The park has visual observations, photographic and written documentation of horse impacts. Recreational impacts on natural resources are very much related to trail maintenance, and should be considered when discussing the need and desired level of trail maintenance required to support commercial horse use.

Dotzenko's research in Rocky Mountain National Park states:

"Soil is a basic resource, the key consideration in any form of land use. Soils are dynamic. They change as the environment is modified, and intensive recreational use is a severe modification. The soil compacting effect of extreme recreational use produces infiltration, runoff and erosion problems which complicate maintenance." (Dotzenko, et al., 1967).

David Bainbridge makes the following statements about trail management:

Horses, both saddle and pack, are undoubtedly the worst culprits in terms of individual impact. Heavy weight, small bearing surface, and sharp shoes combine to cause often devastating environmental impact. Frederick and Henderson (1970) found that pressures up to 1500 psi were generated by a horse's hoof, more than enough to account for the 18-20" deep holes a horse can punch in a meadow. The effect this can have on soil compaction is less known, but extrapolation from agricultural experience would suggest increased compaction to a depth of as much as three or four feet. The sharp steel shoe is also destructive due to its effect in cutting and ripping

the soil. Laing (1961) found that the cumulative effect of a single pack train could be large enough to leave a trail that would last for several years. This contrasts with Palmer's (1972) finding that 250 people on foot could use a meadow trail without causing perceptible changes the following year (Bainbridge, 1974).

> In "Wilderness Management," Hendee, Stankey, and Lucas briefly discuss trampling and horse impacts, and state:

Trampling has three initial effects: abrasion of vegetation, abrasion of surface soil organic layers, and compaction of soils. Plants can be crushed, sheared off, bruised, and even uprooted by recreational trampling. Trampling impacts also include shifts in species composition, changes in microhabitats, and changes in drainage.

Certain stock impacts are similar to those caused by hikers and can be managed similarly; but they are more pronounced, and can require very different management techniques.

Weaver and Dale (1978) study results showed that trails produced by 1,000 horse passes were 2 to 3 times as wide and 1.5 to 7 times as deep as trails produced by 1,000 hiker passes. Compaction increased about 1.5 to 2 times as rapidly on horse trails as on hiker trails.

An experimental trampling study in a grassland in Waterton Lakes National Park, Canada, found that trampling by horses destroyed vegetation cover four to eight times as rapidly as trampling by hikers (Nagy and Scotter, 1974). These experimental results suggest that the creation of multiple trails and new trails will occur much more rapidly with stock use than with hiker use. The trails created will also be wider, deeper, more compacted, and less vegetated. (Hendee, et al., 1990).

> After five years of investigation and research of Rocky Mountain National Park's natural ecosystems and visitor use (primarily hiker) effects on those ecosystems, the following conclusions were made by Dr. Beatrice Willard:

Well-constructed, well-maintained, well-routed trails provide visitor access that result in little or no altering effects on adjacent ecosystems.

Informal trails, or poorly-constructed, poorly-routed, and poorly-maintained trails, cause cumulative alteration of ecosystems through which they pass.

Trampling alters tundra ecosystems, proportionately to the amount and concentration of use. Recovery from trampling is many times

slower than is the rate of production. **(Willard, 1963).**

Willard and Marr concluded .that:

"...trampling is the human activity which produces

the most serious alteration of tundra. A few persons walking without design for several years, or even following a single route for a few seasons, produce only minor damage. However, where many visitors concentrate their walking on a small area, serious damage can occur in as short a time as ten days. Some ecosystems are more easily damaged than others by trampling, and the extent of the damage varies directly with the moisture conditions of the soil: in general, the wetter the soil, the greater the damage. The types of plant material also play a factor in the resilience to damage. It is possible to add man to the Tundra Ecosystem without destroying it, if we regulate his activities according to ecological principles," (Willard and Marr, 1970).

Rebecca M. Summer's 1980 report, "Impact of Horse Traffic on Trails in Rocky Mountain National Park" describes the results of monitoring over two summers to evaluate changes resulting from seasonal horse traffic. The transects established were monitored for an additional five years to understand the "Geomorphic Impacts of Horse Traffic on Montane Landforms," (1986). Summer's 1980 results concluded that: —

Geomorphic monitoring of permanent sites suggests that horse traffic is not the single, dominant process active on trails, nor is degradation always a direct result of horse use. Instead, amounts and rates of change are a function of geomorphic and biologic characteristics of the terrain interacting with horse traffic of varying degrees. Areas that showed more evidence of horse impact were sideslopes of moraines, colluvial slopes, boggy alluvial fans, and most of the alpine landscape. Areas less susceptible to horse impacts include outcrops, talus slopes, terraces, and tops of moraines.

Where bog-like conditions prevail on alluvial-colluvial fans, trails are easily incised and highly erosive, regardless of the amount of use. The impact created by only a few horses is substantial because silty loam, and organic soils under high water table conditions have low bearing capacities.

Alpine colluvial fan-plaination surfaces are the least desirable trail sites in comparison to landforms below treeline. Once the turf is broken by traffic, wind and freeze-thaw processes continue to erode the soil.

In 1979, the NPS contracted a study to research the “Impacts and Management Alternatives Concerning the Moraine Park and Glacier Creek Livery Stables in Rocky Mountain National Park.” Environmental impacts outlined in the report are as follows:

The proximity of the facilities to stream drainage raises concerns about a possible impact on water quality caused by liquid runoff or solid waste from the corrals. Wunderlich and McConnell (park files, 1973) found no measurable biological effects on Glacier Creek caused by the stable, but they also pointed out a potential masking effect caused by variation in stream flow. Organic enrichment was observed at Glacier Creek and Boulder Brook, both in the form of liquid leachate discharging into the streams and as piles of manure on the banks and occasionally scattered in the watercourses. Either stable has the potential to cause organic enrichment following heavy precipitation.

The major impacts from horse use of trails are associated with manure deposited on the trail, changes in vegetation and ground cover near the trails, and erosion occurring on and adjacent to the trails. These impacts are interactive and the severity and quality of some of them are influenced by trail use by hikers.

Trailheads, hitching areas, and trails near the stables tend to receive larger amounts of manure which may over-fertilize the ecosystem.

Horse utilization has several impacts on the vegetation adjacent to the trails. In spite of park guidelines, horses were frequently observed grazing on trail-side vegetation. Plant biomass lost is probably small, more serious is the loss or uprooting of plant soil-cover which tends to increase trail widening by increasing lateral erosion. As trails become incised through erosion and compaction, horses tend to leave the groove and trample adjacent vegetation. This leads to wide, braided, and parallel trails. Some of this trampling can also be attributed to hikers. Trampling is also caused by riding off the trail. This was frequently observed. (Olmstead and Fox, 1979).

2.6.2.Trail Maintenance

Horse use magnifies trail impacts, especially on trails that are wet, have steep slopes, and go through sensitive ecological zones, such as tundra. The ecological impacts that horses produce are very much related to trail design, maintenance and location. Currently, there are numerous trails throughout the park that are eroded, braided, dusty and powdery, and steep,

There are approximately 316 miles of trails open for public use. Of these trails, about 260 miles are open to horse use (Figure 7). Eighty-six percent of the (46,092 total) commercial horse trips for the summer of 1993 occurred on trails east of the continental divide. Budget and concessions policy constraints prevent the NPS from providing the level of support needed to adequately maintain trails used by commercial liveries. Adequate trail maintenance provides for resource protection, visitor enjoyment and safety.

Research results discussed in section 2.6.1. demonstrate the urgency to develop a trail maintenance program that incorporates the horse user, and in this case the

Commercial liveries. Seney and Wilson studied the "Erosional Impact of Hikers,

Horses, Motorcycles and Off-Road Bicycles on Mountain Trails." They concluded:

Horse traffic applies the greatest impact (force) per unit area among hikers, horseback riders, off-road bicyclists and motorcyclists, thus producing the most change.

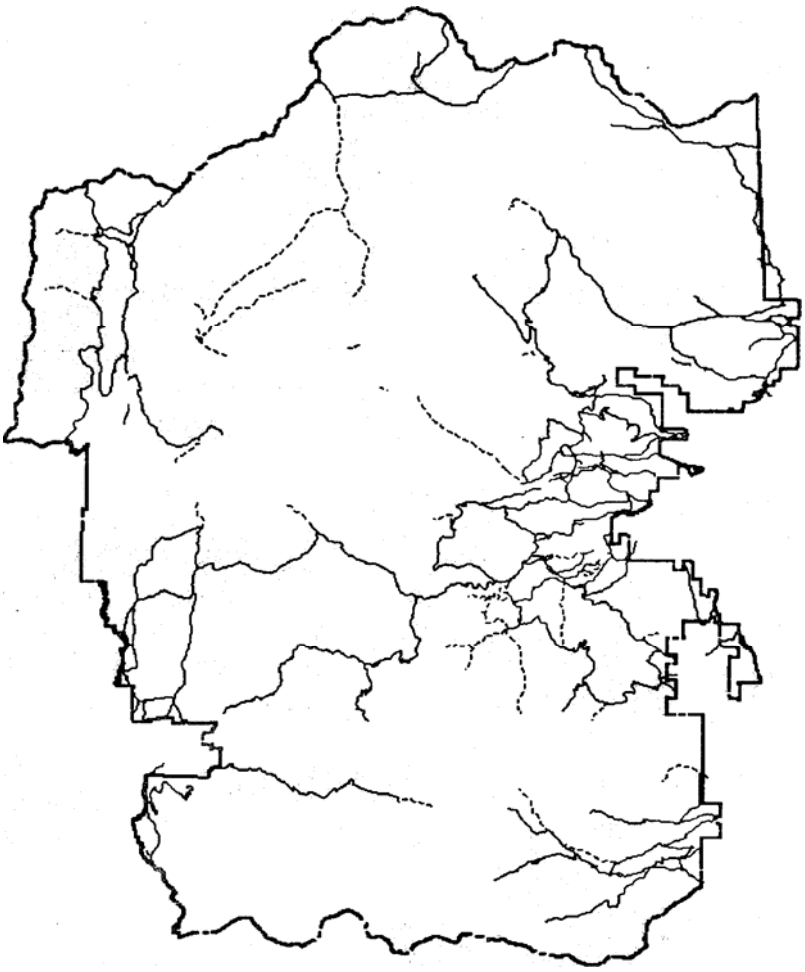
Horse traffic produced significantly more sediment than other users on dry plots.

The largest and most frequent changes tended to occur on prewetted trails. This result occurs because the application of rainfall and the increase in soil moisture which follows, reduces soil resistance, which reduces the trail's ability to bear a moving load.

Kuss (1987) noted that on recreational trails, almost any rainstorm or level of use would impact new trails, but that very large storms and/or very heavy use is needed to initiate change on existing trails. These thresholds will vary with the type and quantity of use as well as with climatic, soil and topographic conditions.

(Seney and Wilson, 1992).

Finkleman, describes mode of transportation loads common to some activities, including cross-country skiing, hiking, heels, bikes, horses and cars. "The load (pounds per square foot) for hiking is 20 lbs. per sq. ft. The load for horses is approximately 440 lbs. per sq. ft." (Finkleman, 1991). This translates to a 22-times greater weight impact on a surface by a horse than by a person. The load impact becomes greater when a rider is mounted on a horse and when horses are packed.



N▲

0 1 2 3 4 5 miles

_____Trails open to horses

----------Trails closed to horses

Trails Map

Rocky Mountain National Park

U.S. Dept. of the Interior – Nat'l. Park Service

rt-002

3/93 ROMO-GIS

Dr. David Cole observed changes in three trail systems on the Selway Bitteroot Wilderness over a period of 11 years. His research found:

It has often been assumed that more heavily used trails deteriorate more than more lightly used trails. Some researchers have found that trail widths increase as trail use increases. Other research has found that there are no significant differences in depth related to amount of use. This particular study showed that the more lightly used trail is less impacted than the more heavily used trail; however, it is also deteriorating more rapidly.

Trail deterioration was associated with level of maintenance. The well maintained trails did not deteriorate as much as the minimally maintained trails. (Emphasis added).

Although the trail system as a whole was generally stable, many trail segments changed markedly. This suggests that the focus of management should be on specific problem segments, rather than on trails or trail systems. (Cole, 1991).

Trail maintenance problem areas influenced by intense commercial horse use in Rocky Mountain National Park **include the following:**

1. Portions of the Beaver MountainTrail.
2. Upper Beaver Meadows.
3. Moraine Park area, especially unofficial trails used near the livery.
4. The Glacier Basin area, especially trails near the livery.
5. Portions of the Lower Tonuhutu Trail.
6. Portions of the Upper Tonuhutu and Upper North Inlet Trails.
7. Portions of **the** Colorado **River Trail.**
8. Portions of the Eugenia Mine Trail.
9. Portions of Deer Ridge Trait.
10. The Aspenglen and Little Horseshoe Park areas.

2.6.3. **Interior** Liveries

Glacier Creek and Moraine Park Liveries are located in very popular areas of the park- Glacier Basin and Moraine Park. Both are within close proximity to the park's two largest campgrounds. The Glacier Creek Livery is within the popular Sprague Lake picnic area and the Glacier Creek riparian area. The Moraine Park Livery is situated on a sloping hill above the Fern Lake Road.

The location of these facilities lends them to associated environmental problems. Glacier Creek Livery is within a wetlands zone. Consequently, the corrals are

muddy on many occasions during the summer. Natural springs flow under the Glacier Creek Livery. The water table is within 18 inches of the surface of the corrals. No riparian vegetation grows within the boundaries of the corrals and hitch rack areas, but wetland vegetation is abundant adjacent to the corrals. A total of 80 horses are allowed in the corrals. Elevated amounts of algae are present in the adjacent riparian vegetative community, along the banks of Glacier Creek, and in the creek itself. A private consultant firm, Aquatic Wetland Consultants (AWC), hired by Hi-Country Stables conducted a survey of the Glacier Creek Livery in the Fall of 1993. The NPS conducted a formal review of the AWC report by technical wetland and water quality specialists for the NPS, and by Dr. Cooper from Colorado State University. Dr. Cooper also conducted an on-site survey of the wetland area in question. Wetlands and Glacier Creek water quality are further discussed in section 2.7.6. After extensive evaluation of available information, the NPS determined that Glacier Creek Livery is indeed in a wetland, and that impacts are occurring to the wetland resources, including Glacier Creek itself.

A total of 90 horses are allowed in the Moraine Park Livery corral. In the summer of 1993, the park trail crew and fire crew mitigated erosion problems associated with the steep terrain leading up to the barn. The old eroded trails are now filled and are in the process of restoration. A new, properly built, and well drained trail now leads visitors to the barn.

Three structures exist at the Moraine Park Livery, plus the corral. A dorm was constructed in 1983 to replace old trailers; and in 1990, another dorm was built **to** correct overcrowding at Glacier Creek Livery. All these structures are visible from the Fern Lake Road. The dorms were authorized for construction with the stipulation that they be temporary and easily removed. The other structure is a barn. The park has stated in writing on several occasions that it is the ultimate goal of the park to remove concessioner storage and housing facilities outside the park. Hi-Country has possessory interest in the barn and dormitories.

Located at Glacier Creek Livery is a barn, two corrals, and a NPS structure. Hi-Country has possessory interest in the barn.

2.6.4.Noxious weeds

Horses have been shown to contribute to the dispersal of noxious weed species in Rocky Mountain National Park (Benninger, 1989). The park is responsible for maintaining biological diversity and the control of noxious weeds. Park research projects, including, the study of noxious weeds, are summarized below.

Mary Benninger's 1989 study titled "Trails as Conduits of Movement for Plant Species in Coniferous Forests of Rocky Mountain National Park, Colorado" makes the following conclusions:

...horse scat collected along trails and at stables contain viable seeds, which demonstrates that horses are dispersal agents for plant species in Rocky Mountain National Park.

A total of 15 taxa were dispersed, with eight reaching a stage of growth in the greenhouse where they were identifiable, and all were exotics. Plants of eight taxa grew from the scat collected at the horse stables, and five were identified to species. Plants of 13 taxa grew from the scat collected along the trails.

Horses may provide a means of entry of noxious weeds into the park, both through feed eaten inside the park and in feed and forage provided for them outside the park. Although the majority of feed passes through the digestive tract of a horse within 48 hours (Alexander 1946, Vander Noot, et al. 1967), horses can keep seeds in their digestive tracts for weeks (Janzen, 1981).

Because some horses may feed on private lands all summer long, horses used in the park may continuously bring seeds of exotic taxa from other areas. Horses may also serve to disperse seeds of exotic taxa already established in the park, because despite prohibition of grazing in the park, horses can disperse seeds of plants eaten along the trails.

No plants grew from scat collected at Glacier Creek stables, but plants grew from all horse scat collected at exterior stables.

Dr. Terry McLendon, who has conducted two years of research in the park on Canada Thistle, and continues to monitor plots, makes the following statements.

Preliminary data indicate that Canada thistle occupies approximately 30% of the area of favorable sites along Mill Creek and Beaver Creek drainages. Although seeds of the species are transported by wind and water, the major invasion factor within the park appears to be trails, and in particular horse trails.

General observations along the Mill Creek drainage suggest that trails, especially those used by horses, are major invasion pathways for Canada thistle. Wherever trails come near or cross moist areas along this drainage, except where the forest canopy is dense and unbroken,

patches of Canada thistle occur. Once established, the patches expand into the adjacent moist areas, especially downslope.

2.6.5. Horse/Hiker Conflicts

The park receives nearly three million visitors annually in an area about one-eighth the size of Yellowstone National Park, which receives the same amount of visitation. Such high use concentrated in a relatively small park brings many challenging visitor management problems. During 1993, approximately 26,331 visitors were backcountry campers who contributed to 44,133 user nights. In the summer of 1993, over 46,000 visitors participated in a commercial horse tour. The park does not have extensive day use data, but in general, it is believed that most visitors are day users. Jennison, in her report on visitor centers of Rocky Mountain National Park, concluded that of 148 respondents, “hiking and driving over one of the scenic roads were the most popular activities for visitor center users.” (Jennison, 1977). Many destinations in the park may be reached by a day hike. The park may be traversed from west to east in a daylong horse ride. The park proposes to study day use more extensively in the near future.

Moore and McLaren in their 1991 report. Symbolic Dimensions of the Packstock Debate, state:

Conflict over wilderness uses partially results from differing conceptions of wilderness as a sacred place; a shifting conceptual definition of wilderness, which now emphasizes ecological preservation and views packstock use as an unacceptable intrusion; and the ability of clashing groups to cognitively consider the same set of facts, but respond to them differently emotionally.

Three studies were initiated by the U.S. Forest Service to provide a broad look at the interaction between hikers and recreational stock users on the John Muir Wilderness on the Sierra and Inyo National Forests, Sequoia-Kings Canyon National Parks in California, and at the Charles C. Deam Wilderness on the Wayne-Hoosier National Forest in Indiana. The results are as follows:

Half of all hikers who met horses reported they did not mind meeting them in the wilderness.

Hikers who dislike meeting horses in wilderness believe the horses should not be in wilderness. They believe horses constitute inappropriate use of the resource.

Hikers who disprove of horse use also have stronger relationships with wilderness, placing more value on solitude opportunities than those who do not express dislike for horses.

At the John Muir and Sequoia-Kings Canyon Wildernesses, the majority of the problem behaviors were allowing horses to defecate in places where hikers have to walk, and noisy and rude stock groups. (Watson, et. al.. 1992).

Trail user conflicts were studied at Horsetooth Mountain Park, approximately 35 miles northeast of Rocky Mountain National Park. The study found that:

User groups are unaware of what to expect from each other. This lack of understanding and awareness also may result in trail use conflict. Also, hikers did not perceive conflicts between users, although most hikers tend to use the park during the week when potential for crowding is less. Horseback riders view trail conflicts as social rather than environmental. (Cameron, 1989).

Dr. Richard Trahan surveyed six Rocky Mountain National Park trail systems in 1977: Bear Lake (hiker only trails). Glacier Gorge, Wild Basin, Longs Peak, Cub Lake, and Specimen Mountain. A variety of questions were asked, including, “What do you think about commercial stables that rent horses using the park trails with groups of 10 to 20 riders?” The number of respondents within each trail system varied from 75 in Specimen Mountain, 112 in Cub Lake, 156 in Longs Peak, 196 in Wild Basin, to 227 in the Glacier Gorge system. Results were:

Glacier Gorge - 32.6% indicated that they “strongly disapprove” of commercial horse use on park trails.

Wild Basin - a majority of hikers disapproved of commercial horse use on park trails.

Longs Peak - over 60% of the sample disapproved or strongly disapproved of commercial horse use on park trails.

Cub Lake - a majority of hikers disapproved of commercial horse use on park trails with 29.5% indicating that they “strongly disapprove” versus 5.4% that “strongly approved.” Only in relation to horse use of trails did a clear majority of hikers on the trail seem concerned about the lack of a quality experience.

Specimen Mountain - over 45% of them “strongly disapproved” and another 28% “disapproved” of commercial horse use on park trails.

Dr. Trahan conducted a one-week survey, also in 1977, which interviewed visitors renting horses at the two stables inside the park, and day hikers on the trails used by horses. Researchers interviewed 515 livery users and 1,100 day hikers.

The results were:

The interview data indicated that for a great majority of people renting horses, horseback riding was not a common occurrence in their lives. Ninety percent of the sample had never ridden a horse in Rocky Mountain National Park before.

Seventy-four percent of those interviewed reported that they had planned to go riding before they arrived in the Rocky Mountain National Park area.

Over 90% of those interviewed said “yes”, “scenic areas of the surrounding national forest would be as acceptable as riding in Rocky Mountain National Park”.

Sixty-eight percent of the respondents said they would seek stables outside the park to go riding if there were no stables renting horses inside the park.

Only 77% of the people renting horses would be willing to see commercial horseback riding stopped in Rocky Mountain National Park if it were damaging to the park environment. The 17% that said no, did not believe it was possible for horseback riding to be damaging to the environment, and if it was, that riding would never be allowed by the NPS.

Ninety-nine percent of the respondents reported that they had no disabilities which would prevent hiking on park trails.

For 35%, the important thing was riding a horse, and not really concerned about where they went riding.

Fifteen percent were persuaded to go horseback riding, and had no interest in seeing the park by horse.

Fifty-five percent of the 1,100 hikers disagreed or strongly disagreed, in general, with horseback riders using park trails.

Sixty-five percent of hikers disapproved of large groups of horses on park trails.

Olmstead and Fox analyzed social aspects of horseback riding within the park. Nine hundred interviews of horseback riders at both in-park and out-park liveries

were completed during the study. The findings were:

Of all adult visitor riders, 93% indicated their expectations were met.

Data from interviews with horseback riders indicates that horseback riding is seen and utilized as an end in and of itself.

Horse use related complaints were either concerning manure, flies, dust, erosion and right-of-way problems, or complaints related to concession operations and management, especially the behavior of the livery concession personnel.

Approximately 50% of adults did not know that the in-park liveries were a private concession. (OImstead and Fox, 1979).

Although the Trahan and OImstead studies were conducted 15 years ago, hiker and horseback rider conflicts are still an issue, and this information is considered valid for today.

2.7. Natural and Cultural Resources of Concern

2.7.1. Animal Species

It is not known how and to what extent commercial horse operations are impacting animal species in the park. The impact on the microbiotic fauna in streams due to horse use is also unknown. Although there are no specific studies concerning recreational horse use impacts on animal species, some professional statements may be made in light of wildlife behavior and monitoring research.

"Visitor Impact Management, A Review of Research" summarizes the complex variables related to recreation impacts on wildlife as follows:

There is no uniform relationship between amount of recreational use and wildlife population variables. Many statements can be found in literature to the effect that wildlife will be displaced if human intrusion becomes "too great" (Ream, 1980), but little evidence exists to show when the level of disturbance becomes too great. Larger game species tend to be affected more by direct contact with people, while smaller forms of wildlife appear to be more susceptible to indirect impact on habitats. Some types of recreational activities have greater impacts on wildlife than other types of activity. Impacts can vary according to the type of transportation used (vehicular versus pedestrian), the extent to which an activity is concentrated or dispersed, and various characteristics of visitors such as party size

and behavior. Setting attributes that can affect the outcome of human-wildlife interactions include elevation, topography, weather, amount of vegetation and escape cover, and food availability. It is well-established in the literature that human-wildlife interactions should be avoided at fundamental and critical habitat areas and seasons. (Kuss, et aL, 1990).

In “Wildlife Research and Management in the National Parks,” Dr. R. Gerald Wright describes those species minimally impacted by human disturbance, and those species sensitive to disturbance.

Generally, species in descending order of tolerance are: moose, white-tailed deer, mule deer, pronghorn antelope, and to a lesser extent, Rocky Mountain Elk. Elk may be more influenced by group dynamics than other species. If one animal turns and flees, others will generally follow. The elk’s degree of tolerance is related to its degree of habituation.” (Wright, 1992). “For example, elk arriving later in the autumn on the lower elevation meadows in Rocky Mountain National Park apparently tolerate less human disturbance than elk that had arrived on the winter range earlier.” (Schultz and Bailey, 1978).

The sensitivity of Rocky Mountain bighorn sheep to disturbance by humans has long been recognized. Post (1976) and Stevens (1982) postulated that stress may be a major factor in aggravating the influences of lungworm infections, and that disturbance by human activities could place sheep under such stress. (Wright, 1992).

Elk tend to concentrate in Horseshoe Park and Moraine Park during the breeding season, which occurs from mid-September through the end of October. These areas also receive heavy horse use during the summer months, and depending on weather conditions, limited use may extend into mid-October. Presently, hikers and horseback riders must stay on established trails during the breeding season in the Horseshoe Park and Moraine Park areas.

2.7.2. Vegetation Species

The park has over 1,000 identified plant species. The Denver Botanic Gardens staff has identified a number of plant populations of special concern in various types of park ecosystems. These surveys were conducted from 1987-1992.

Preserving the genetic integrity of the park’s vegetation communities is of great management concern, especially when linked with the potential introduction of noxious weed species through horse manure. The park is implementing a major

disturbed site restoration program. It is important to monitor the recovery of plant species in these previously developed sites, and to ensure that noxious weeds do not dominate the scene.

2.7.3. Research Natural Areas

There are three Research Natural Areas in the park, totaling 24,000 acres. These areas are part of a worldwide system of natural areas established by the International Biological Program for scientific and educational purposes. Natural processes are allowed to predominate and act as important baselines against which man-caused changes elsewhere can be measured. Only day hiking is allowed in these areas. (U.S.D.I., NPS, Statement for Management, 1992).

2.7.4. Global **Climate Change** Research Areas

The Global Climate Change Project is a long-term research program that is designed to monitor climate conditions and effects on plant ecosystems over time. Permanent vegetation transects will be established in the park. Since the validity of the data is essential, impacts from activities that cause removal of vegetation from any of the transects is unacceptable. One of the trial transects bisects a trail in the Upper Beaver Meadows, a popular ride for liveries. This transect may have to be relocated to a similar ecotone type.

2.7.5. Cultural Resources

The park's Cultural Resources Management Plan was approved in March, 1988. This plan includes detailed information on historic and prehistoric resources, and defines requirements and management direction for cultural resource preservation.

2.7.5.1. Historic Resources

Historic resources relate to mining, ranching, tourist activities within the park, and to facilities associated with development of the park. Mining in the late 1800's, especially on the west slope, added man's touch to the scene in areas like Lulu City and Dutch Town. Settlement of both slopes brought ranchers and tourists, and a transcontinental road to the park. Eleven park properties are included on the National Register of Historic Sites. These properties include historic districts, ranger stations, houses, lodges, cabins, and roads. The cabin type structure at Glacier Creek Livery is a historic structure, but is not listed on the National Register.

2.7.5.2. Archeological Resources

Park archeological resources relate primarily to Native American sites dating back 11,000 years. The Ute Trail traversing Trail Ridge, provided a transcontinental divide route for both Ute and Arapaho tribes, as did the Flattop Mountain Trail and the Fall River Trail.

Various archeological surveys have identified aboriginal sites and trails. The work of archeologists suggests that the earliest occupation of the park was between 10,000 and 15,000 years ago, and that from at least 9,000 years onward, there was continuous use of the area (Husted, 1959). Additional archeological work in the park consists of preconstruction surveys at varied sites. To date, 91 archeological sites are recorded within the boundaries of the Park. No known horse routes cross archeological sites.

2.7.6. Wetlands

Approximately 21 miles of horse trails are within riparian ecosystems. Headwaters of several major rivers originate in the park, including the Colorado River. Wetlands in the park are represented by riparian ecosystems: lakes, streams, wetland meadows, willows, blue spruce, aspen, and other wetland indicator vegetation species. Mottled and moist soils in conjunction with wetland vegetation are indicative of wetland sites. Marshes, swamps, and bogs are also termed wetlands.

The U.S. Fish & Wildlife Service defines wetlands as: “lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Wetlands must have one or more of the following three attributes:

> 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.” (U.S.D.I., Fish and Wildlife Service, 1979).

The 1988 Wetlands Plant Survey by the Denver Botanic Gardens states that: “the Moraine Park wetlands harbor a unique association of plants not found in any other area targeted in this survey.” (Denver Botanic Gardens, 1988). The Moraine Park area receives heavy horse traffic.

The Sprague family conducted lodging and horse operations in the Glacier Creek area in the late 1800s. One Sprague facility, which the NPS owns, remains on site. Glacier Creek Livery has been operating on a commercial basis since the early 1950s. The Livery is surrounded by wetlands. Considerable amounts of fill have

been used to develop the corrals as they exist today. Glacier Creek receives nutrient drainage from the corrals that are in close proximity and upslope from the creek.

There is considerable historical and current written information documenting concerns about Glacier Creek Livery impacts on the natural resources. National Park Service correspondence dated April 21, 1969, records livery impacts as follows:

1) Pollution of flowing water, "...the concentrated horse use of the beaver dam area is adding significant amounts of organic matter directly to the small tributary of Glacier Creek. 2) Destruction of vegetation. The intense trampling and feeding of the horses in the enclosed area has severely damaged the vegetation and ground cover including tall willow plants and trees. This is especially true in the boggy areas around the beaver dams which cause erosion and silt being carried down stream, adding to the pollution. 3) Destruction of wildlife habitat. The effects of the horses on the vegetation and the aquatic ecosystem appears to have caused the beaver colony to be abandoned."

The livery has been reduced considerably in size since 1969 from approximately six acres to approximately two acres. The corrals are currently within 20 feet of Glacier Creek, a tributary of the Big Thompson River. Thompson River tributaries within Rocky Mountain National Park are classified by the State of Colorado as Aquatic Life Coldwater Class 1, Recreation Use Class 2, and Hi-Quality Water Class 2. These existing standards are to be maintained or protected. Therefore, management of these waters should be conducted so as not to degrade the water quality. The only means water quality could be degraded is through a formal anti-degradation review process.

Mr. David Steinman from Aquatic and Wetland Consultants (AWC) was hired by Hi-Country Stables in September, 1993, to produce a "Glacier Creek Stables Aquatic Ecosystem Assessment Report." The project was initiated in response to the draft of this plan, which identified as a proposed alternative to relocate Glacier Creek Livery away from wetlands to an upland site. Mr. Steinman's conclusions are summarized below.

Glacier Creek Livery does not cause measurable or observable degradation of Glacier Creek or wetlands.

Glacier Creek water quality investigations show no measurable water quality degradation directly attributable to the livery.

Observed iron leaching and algae are natural events and do not appear to

negatively impact Glacier Creek.

The suggestion that the livery was constructed in a wetland is not supported by field observations.

Glacier Creek Livery has implemented “best management practices” to protect adjacent aquatic resources. Any impacts to Glacier Creek can be easily mitigated through the construction of an artificial wetland, lining the corrals with an impervious layer of bentonite clay, and building a berm around the corrals.

> The National Park Service Water Resources Division provided technical and regulatory/policy review of the “Glacier Creek Stables Aquatic Assessment Report” conducted by AWC. Review was performed by NFS Wetlands Specialist, Joel Wagner, and NPS Hydrologist, Barry Long. Their results are summarized below:

The statement that “The livery is situated on a non-wetland alluvial terrace...” is clearly incorrect. The jurisdictional wetlands map provided with the report indicates that a substantial wetland area currently exists between the two sections of the corral. This quote also does not account for evidence of additional historic wetlands on the alluvial terrace as determined by Dr. David Cooper in a subsequent investigation.

The Glacier Creek and Boulder Brook stream channels are classified in the “Riverine” system, not the “Lacustrine” as stated in the AWC report.

The report provides no substantive evidence to support the conclusion that “the majority of the livery was constructed on non-wetland, excepting a small area where the corral crosses the central wetland drainage.”

The AWC delineation data sheets for the four corral sample sites do not indicate proper evaluation of wetlands within the corral. AWC identifies the soil sample sites as “Atypical situations” and “Problem Areas,” as defined in the 1987 Corps of Engineer’s Wetland Delineation Manual. No explanation is provided on the AWC data sheets indicating that the sites were evaluated under the required special procedures for “Atypical Situations” and “Problem Areas” outlined in the Corps Manual.

Potential impacts on water quality are apparent at the site, and existing data support the idea that measurable impacts occur on a periodic basis.

The NPS Floodplain Management and Wetlands Protection Guidelines (45 FR 35916, minior revisions in 47 FR 36718) provide objectives, guidelines, and procedures governing activities with the potential for adversely impacting

wetlands on lands managed by the NPS. These procedures apply to all NPS actions proposed after May 28, 1980, which have the potential for adversely impacting wetlands. (The basic “test” for adverse impacts is the destruction or modification of wetlands and the direct and indirect support of wetland development.) The action in this case is (development of the Commercial Horse Use Management Plan. A recommendation for retaining this facility at the current location is an action with adverse impacts on wetlands, with the alternative being to move the facility to an upland location within or outside the park and restoring the wetlands).

Also in the Fall of 1993, the NFS hired a wetlands specialist. Dr. David Cooper, of Colorado State University. Dr. Cooper reviewed the AWC report. Also, Dr. Cooper and park hydrologist. Dr. Ken Czarnowski, conducted an on-site inspection and survey of the Glacier Creek Livery. Dr. Cooper’s thorough scientific analysis of the AWC report and the livery provided the following information:

Glacier Creek is in a small ravine approximately 30 feet deep, and strong springs flow from the east side of this ravine. Thus, a wetland ecosystem completely connected to Glacier Creek occurs on this slope. Indeed, the site of Glacier Creek Livery once contained very valuable wetlands.

Ammonia is most likely arriving in the groundwater and in Glacier Creek relatively unmodified. The NPS has found ammonia levels exceeding state standards in springs that discharge into Glacier Creek. These high levels indicate that significant amounts of urine are percolating into the corral soils and being incorporated into the groundwater.

Much of the iron found at the seeps may be natural.

Field observations conducted by AWC on behalf of Hi-Country Stables did not follow standard investigative practices for disturbed and potential fill sites.

Soil investigations, beyond the 12 inches of fill, reveal that Boulder Brook wetlands, and the wetlands under both the corrals are completely connected to Glacier Creek.

Because all wetlands between Glacier Creek and Boulder Brook are completely connected indicates that direct discharge of horse wastes into the waters of Glacier Creek has been occurring for many years.

The vegetation buffer around the stables does not prevent storm water and other runoff from entering the stream.

The creation of a constructed wetland has not been proven for high elevation areas, and in particular, cold regions where the ammonia loading rate would be phenomenal. A bentonite clay layer in the corral and a berm around the corral is not practical and would not work in the long term.

Complete restoration of the wetlands in the study area is the best solution for the National Park Service. This restoration could be accomplished easily, quickly and for a small cost.

The park's evaluation and conclusion on the future of wetland management with regards to Glacier Creek Livery is described in Section 3,2.4.

2.7.7.Rare. Threatened, and Endangered Species

Rocky Mountain National Park has the responsibility to protect and perpetuate sensitive, unique, rare, threatened, or endangered flora and fauna. The monkey flower (Mimulus gemmiparus) is Federally listed as a Category II plant, with recommendations to list it as a threatened or endangered species. The highest priority for all known and potentially rare, threatened, or endangered plant locations is to protect and perpetuate these plants and habitats.

Table 3 lists Federal and State threatened and endangered (T&E) animal species for the State of Colorado. Rare, or State and Federally listed animals re-established in the park include the river otter, peregrine falcon, greenback cutthroat trout, and Colorado River cutthroat trout. The park is in the process of replacing non-native fish with the greenback cutthroat trout or Colorado River cutthroat trout throughout their known historical habitat. All of these species appear to be increasing in numbers.

Greenback cutthroat trout exist in less than 10 park streams that are either adjacent to or intersect trails used by commercial liveries. Anywhere there is

Table 3. Federal and State Threatened and Endangered Animal Species That Occur or Have the Potential to Occur in Rocky Mountain National Park.

Species	State Listing	Federal Listing
* Greenback cutthroat	Threatened	Threatened
* Woodfrog	Threatened	
* Bald Eagle	Threatened	Endangered
* Peregrine Falcon	Threatened	Endangered
••Gray Wolf	Endangered	Endangered
** Grizzly Bear	Endangered	Threatened
** Wolverine	Endangered	
* River Otter	Endangered	
** Lynx	Endangered	

*** Species are known to occur in the park**

** Species have occurred in the park historically or have the potential to occur.

2.7.8. External Park Trail Damage

Liveries have used, and continue to use access routes to the park which cross private lands. The concern is that natural resource damage occurs on these lands as a result of the authorization given by the NPS for commercial horse operators to use park lands. The NPS understands these concerns, but does not have the legal authority to require or enforce operational standards outside the park boundary. In the interest of maintaining good neighbor relationships, the NPS will encourage those concessioners who utilize private lands to obtain landowner permission, mitigate resource damage, and conduct trail maintenance.

2.8. Commercial Use in Rocky Mountain National Park's Recommended Wilderness

The Wilderness Act, NPS Management Policies, and NPS Wilderness Policy provide guidance for wilderness management. The wilderness resource shall be protected for present and future generations. One of the identifying characteristics of this resource is that it has "outstanding opportunities for solitude or a primitive and unconfined type of recreation." (Wilderness Act, 1964). Approximately 233 miles of horse trails are within recommended wilderness.

The Wilderness Act established a national wilderness preservation system. The policy as written in the Act is as follows:

It is ... the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. The Act defines wilderness as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. Wilderness is further defined to mean... an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions.... (Wilderness Act, 1964).

As outlined in National Park Service Management Policies, wilderness management programs and policies apply to parks that have designated wilderness, potential wilderness, and recommended/study wilderness. Rocky Mountain National Park has 2,917 acres of designated wilderness, 264 acres of potential wilderness addition, and 239,802 acres of recommended wilderness. This is 91 percent of the park which is to be managed as wilderness. National Park Service Management Policies state, “The NPS will take no action that would diminish the wilderness suitability of an area recommended for wilderness study or for wilderness designation until the legislative process has been completed.” (U.S.D.I., NPS. Management Policies Chpt.7:2, 1988).

NPS Policies also state:

The National Park Service will encourage and facilitate those uses of wilderness that require the wilderness environment and do not degrade wilderness resources and character. ... (And) ... Visitors will be encouraged to comply with the concept of no-trace or minimum impact wilderness use for both themselves and their livestock.

Wilderness-oriented commercial services that contribute to achieving public enjoyment of wilderness values or that provide opportunities for primitive and unconfined types of recreation may be authorized if they meet the “necessary and appropriate” tests of the Concessions Policy and Wilderness acts, and if they are consistent with the wilderness management objectives contained in the park’s wilderness management plan. (U.S.D.I., NPS, Management Policies 6:8, 1988).

2.9. Socioeconomic Environment

Commercial horse operators are involved in local and national organizations that represent their specific needs. These include the Estes Park Liveryman’s Association, Trail Riders Associations and Councils, the North American Horseman’s Association, the North American Association of Pack and Trail Operators, and Dude Ranch Associations.

Horseback riding in the Rocky Mountains of Colorado generates a significant economic benefit. The 41,600 average horse trips per summer season the park receives generate approximately $815,000 of indirect revenue to the local economy. Indirect impacts to the local economy may occur from purchases at tack stores, western clothing and accessory shops, cooperative stores, and feed stores.

3.Identification of Alternatives

3.1.Actions Common to All Alternatives

There are a number of actions in addition to the alternatives identified that will be instituted as a result of this plan.

3.1.1.Special Conditions for Commercial Stock Operations

Section 1.3.2. of this plan defines commercial services authorized. Those authorized services must comply with special conditions, individual contracts/permits, and operating plans. Special stock operation conditions include, but are not limited to:

1. Streams will only be used for crossings when horse bridges are not provided. Streams will not be used for soaking horses' hoofs.
2. Manure will be removed from interior livery corrals weekly, and disposed of outside the park.
3. Horse use will only be conducted on official park trails, i.e., those trails identified on the "Statistical Reporting Form Map." Use on non-official trails will not be permitted.
4. Grazing of stock is not permitted. Where horse hitch rails exist, horses will be tied to them exclusively.
5. Operators using private lands to access the park should regard them with the same respect as park land.
6. The livery shall conduct trail rides in such a manner to protect, interpret and minimize impacts on park resources.
7. Concessioners will take every measure possible to insure that the stock used for recreational rides have temperaments and dispositions suitable for safe, pleasurable rides for novices.

More detailed conditions of permits and contracts are found in individual operating plans. Concessioners are evaluated at the beginning, middle and end of the season. Should there be serious or repeated violations of permits, contracts, or operating plans, the authorization to operate in the park may be revoked.

3.1.2. Improve Education and Information on Horse Use

3.1.2.1. Develop and distribute a horse and pack stock bulletin to interested individuals and equestrians at the visitor centers and entrance stations. The bulletin will cover topics such as trailer parking, trails and roads open/closed to horses, overnight camping, environmental ethics, etc. This will help inform commercial and private horse users, and hikers.

3.1.2.2. Provide appropriate signs on trails receiving heavy horse traffic to help visitors choose which trail to hike or ride, and better meet their expectations. Dr. Trahan's report on Day Use Limitation in National Parks concluded that of the 1,001 respondents, 36.3 percent strongly favor signs identifying heavily used trails as acceptable systems to limit day use (Trahan, 1977).

3.1.2.3. Incorporate special horse information on trailhead bulletin boards and general park brochure when these interpretive tools are revised.

3.1.2.4. NPS Management Policies state that concessioners will provide all authorized services in ways that are consistent with and supportive of the interpretive themes, goals, and objectives of the parks where they operate. Where practicable, concessioners will be encouraged to assist in park interpretation as a method of supplementing park staff and funds and contacting more park users. Concessioner interpretive efforts will be directed and monitored by the NPS to ensure that they meet the quality standards applied to NPS interpretive programs, exhibits, and displays. (U.S.D.I, NPS, Management Policies 10:9, 1988).

3.1.3. Enforce Commercial Use Requirements

The park must enforce the requirements stated in commercial horse use permits and operating plans to allow horseback riding services to continue for the benefit and enjoyment of the public, while at the same time protecting the resources. For this plan to be effective, the park must follow through on all the proposed actions.

3.1.4. Enhance Communications Among all Livery Operators

The park will continue to work closely with commercial livery operators to make the plan viable and meaningful. Park management will inform the operators of any changes in concessions management regulations, new park plans that may affect their operations, trail work to be performed in areas they use, and any other action that would affect the liveries, either positively or negatively. The park will continue to be involved in the Liveryman's Association meetings, and maintain an open door policy for livery operators to express their concerns to park employees, including management.

3.1.5. Develop and Implement a New Reporting Form for Horse Use

The revised form (see Appendix D) will continue to require liveries to report the number of horse trips on a monthly basis. Each form will identify the livery, reporting month, day of the month, trail code, and the number of horses per day that used a specific coded trail. A map with those trails open to horse use will be given to the liveries for assistance. Use on trails other than those identified by a code are not authorized. Management of the data, including the production of reports and trends, will be conducted through a database management system (dbms). The use of a dbms will ensure that the information can be imported to a Geographic Information System in the future to produce useful maps with meaningful data.

3.1.6. Identify a Limits of Acceptable Change (LAC) Program for Monitoring Trail Conditions.

The LAC is a public involvement and planning technique used for reaching consensus on management issues, it asks participants to consider how much change can be tolerated. A basic premise of LAC is that all human activities cause impact; therefore, some change in conditions is inevitable and management plans should focus on the conditions of the resource (effects of human activities) rather than visitor use numbers. LAC works to define what is and is not achievable or acceptable for the resource and to develop a strategy for preventing unacceptable conditions from occurring (Krumpe and McCoy, 1991). LAC planning normally takes two years, with extensive public involvement. Personnel and financial costs are so expensive, that the park does not anticipate implementing this program in the foreseeable future to. However, it is recommended that a trail monitoring program be developed using the LAC concept. The future LAC program for trails will enhance and complement this plan.

3.1.7. Map all Park Trails, Including Horse Routes

The park will map trails using a Global Positioning System that will download on a Geographic Information System computer. This information will be used to develop an inventory program for trail conditions (trail attributes, such as slope, geomorphology, drainage, vegetation, etc.), desired maintenance levels, which may be used to set up limits of acceptable change guidelines for trails.

3.1.8. Provide for Periodic Review and Plan Update

This plan will be reviewed and updated at least every two years. This will allow any revisions in concession policy or livery operations to be incorporated into the plan. The effectiveness of some selected alternatives may need to be evaluated after two to three years of implementation, i.e., the signing of heavy horse traffic trails, and the trail maintenance program. Revisions of the plan will be the responsibility of the park's management assistant.

3.2. Issue Statements, Alternatives, and Impacts 3.2.1. Trail Maintenance

The need to increase the trail maintenance program in heavy horse traffic zones is discussed in section **2.6.2.** Reduced levels of trail rehabilitation and maintenance in part contribute to trail deterioration, erosion, and trampling of vegetation. The current condition of many trails within Rocky Mountain National Park is below established standards (Table 4 and Appendix E). Impact characteristics, such as braiding, deep incisions, widening, etc., are pronounced due to horse use, especially on wet soils or steep terrain. Many park trails were never properly located, designed, or constructed, making maintenance more difficult and time consuming. The park's goal is to upgrade and maintain commercial horse use trails to NPS standards.

The 10 Year Plan for Trails (updated in 1991), developed from maintenance management system data, identifies a need of over $2.0 million to repair or rehabilitate all park trails. Heavy horse use trails in the Aspenglen, Moraine Park, and Glacier Basin areas will require a minimum of $440,000 to repair and rehabilitate. The needed Aspenglen trail work only covers about 1.7 miles, but is the heaviest horse use trail section in the park. in the past four years, use on the first .7 miles of this trail has averaged over 10,000 trips during a summer season. The other two heavy horse use areas identified for rehabilitation cover 25 miles of trail in Moraine Park and Glacier Basin/ Sprague Lake.

Table 4. TRAIL STANDARDS GUIDELINES SUMMARY

	Standard A	Standard B	Standard C	Standard D	Standard E	Standard F
Type of Use	All-public; high foot use (no horses); wheel chair access.	High foot use; (no horses).	High horse use (foot use incidental)	Intermediate to high foot and usually horse use.	Low - interm. foot and usually horse use.	Low foot use (no horses)
Typical Location and Function	Short paved trails to or around extremely popular features such as lakes.	1 or 2 mile trails from heavily visited road corridors to popular scenic areas.	Trails from liveries inside or outside park to scenic or other resources inside park.	Primary back-country trunk trail (through lower part of primary drainage; or trail to main destination.	Secondary backcountry trail (leading to many destinations in tributary trails.	Minor backcountry trails.
Treadway Width	6 feet +	4 feet +	3 feet +	1-1/2 to 3 ft.	1-1/2 ft.+ (var)	1-1/2 ft.+ (var)
Average Maximum Grade	8° maximum, 5° sustained	15°	12°	12°	20°	20°
Other	Carefully designed and constructed according to standards.				Generally non-constructed trail	

Source: **1984** Trails Management Plan

The 1982 Trail Plan recommended trail upgrades that would accommodate current commercial horse use volumes. Although the plan was never fully implemented due to lack of funds and lack of National Environmental Policy Act (NEPA) compliance, portions of the Flattop Mountain. Longs Peak, and Lawn Lake Trails have been rehabilitated within the past seven years. These trails are used by liveries. The Flattop and Longs Peak trail projects were conducted in 1987 and 1988 with special project funds totaling approximately $211,700. Trail projects conducted with special monies are one time funding sources which end when the project is completed. This differs from yearly park base funds for trail maintenance and rehabilitation work. The trail maintenance budget for the entire park from base funds has averaged $150,000 yearly over the last four years. This amount is not sufficient to meet the recommendations identified in the 1982 Trails Plan, or in the park's 10 Year Plan for Trails. Trails maintenance is more complex than it may appear, and requires much administrative support. For example, in 1993, approximately 33 percent of the entire east side trails maintenance base funds were spent on administrative support, including, but not limited to: supervision, project planning, training, and supervision of volunteers.

Liveries currently are not required to perform trail maintenance. The Estes Park Liveryman's Association, comprised of park concessioners, participates in a voluntary trail maintenance program. In the summer of 1993, the Association donated a total of $5,500 for trail maintenance. The park used approximately an additional $7,000 and worked on heavy horse traffic trails. The type of work performed consisted mostly of cyclic maintenance (see below).

The 1984 Trails Management Plan defines the overall trails program as:

- Routine Maintenance: Opening and closing trails; cleaning water bars, culverts, etc.; removing loose rock and windfalls; shoveling snow; etc.

- Cyclic Maintenance (conducted on a cycle of less than once per year): Constructing waterbars, steps, checks and bog bridges; resurfacing; building minor bridges; repairing rock walls; and maintaining trail tread.

- Restoration/Rehabilitation: Restoring gradients; filling ruts; seeding; etc.

- Trail Construction (Not covered under trails maintenance activities; normally accomplished with construction funds): Rebuilding major bridges, fills, cuts, and retaining walls; blasting boulders; and some realigning of trails.

3.2.1. Trail Maintenance: Alternatives

Note: The alternatives for trail maintenance assume the park's continued availability and use of an NPS trail crew.

1. Status Quo. Continue with current commercial livery volunteer trail maintenance program within heavy horse traffic zones.
The volunteer program includes clearing downed trees or removing rocks, but does not include building bridges, water bars, checkdams, retaining walls, etc.

2. Develop a formal trail maintenance program as a contract/permit requirement to **perform routine and cyclic maintenance, and restoration/rehabilitation work on heavy horse traffic trails. (Selected).** Funds for cyclic maintenance and restoration/rehabilitation work will come from increased concessioner fees. Trail assignments are to be defined in each livery's operating plan. Routine maintenance is to be performed independently of any trust fund monies.

3. Use The Park Volunteer Program to perform trail maintenance in high horse traffic zones. (Selected). This would involve using private horse user groups, clubs, and organizations.

4. Use The Park Hot Shot Fire Crew when available to conduct trail work. (Selected). Fire incidents would take priority.

Alternative Considered, but Rejected:

1. Hire park trail crew through required commercial horse operation monetary assessment to reconstruct, rehabilitate and maintain heavy horse use trails. The NPS cannot take money for personal services, and they do not have reimbursable authority.

IMPACTS FOR TRAIL MAINTENANCE ALTERNATIVES

	Alternative 1 (Status Quo)	Alternative 2 (Selected)	Alternative 3 (Selected)	Alternative 4 (Selected)
Natural Resources	Does not meet need to reduce natural resource impacts on heavy horse traffic trails by improving trail maintenance.	Addresses need to rehabilitate and improve maintenance on heavy horse traffic trails.	Same as alternative 2.	Same as alternative 2.
Soils and Vegetation	Soils and vegetation on and adjacent to heavy horse traffic trails would continue to degrade.	Will meet trail standards, thus help reduce impacts on soils and vegetation.	Same as alternative 2.	Same as alternative 2.
Wildlife/T&E Species	Potential impacts to greenback cutthroat trout will continue.	Mitigate impacts to greenback by building bridges for horse traffic.	Same as alternative 2.	Same as alternative 2.
Water	Excessive erosion into waters may occur from trails that do not meet standards.	Reduce soil erosion into water courses.	Same as alternative 2.	Same as alternative 2.
Wetlands/Floodplain	Potential for 21 miles of trails in riparian zones to be impacted.	May reduce some impact to trails in riparian zones.	Same as alternative 2.	Same as alternative 3
Air Quality	None	None.	None	None
Cultural Resources	None	None	None	None
Visitor Use and Experiences	Visitors continue to experience horse impacted trails	Improved trail conditions may enhance visitor enjoyment.	Same as alternative 2	Same as alternative 2
Concessions Operations	Liveries not required to do maintenance. Minimal to no cost increase	Maintenance mandatory for liveries. Increased operation costs.	Would supplement existing level of trail maintenance.	
Administration	None	Requires park staff to administer the program.	Need staff to train, supervise & coordinate.	Requires little staff supervision in long run.

Mechanisms for implementing Selected Alternative

It should be recognized that implementation of all the selected alternatives may not meet all trail maintenance needs, but will significantly assist with maintenance of heavy horse traffic trails. The selected alternatives will serve as the basis for management decisions regarding trail maintenance. There may be a number of concession authorities the Superintendent may use to implement alternative 2. The most likely form of implementation is as follows:

The liveries will be assessed a percentage increase on their concessioner fees based upon a financial analysis. The interior livery analysis will vary from the exterior liveries. It is recommended that any monetary increases above the current concessioner fee amounts be structured into a single trust fund. The government cannot administer a trust fund. Therefore, it is recommended that a trustee be chosen by all the permitted liveries. The park will be responsible for setting up projects, assigning project priorities and reviewing the work. The liveries and trustee will be responsible for hiring a trail crew to conduct the work. The liveries may use their own employees for trail work, or they may contract the work. The projects may consist of cyclic type trail maintenance, or restoration and rehabilitation work, but it may not consist of routine maintenance. Trail sections for projects will be defined in each livery's operating plan. The areas may be similar to those discussed and identified in previous Liverymen Association meetings. The concessioner fees and their purpose for increases will be identified in concession contracts and permits per regulations for authorization of special accounts published in the Federal Register on January 7. 1993.

The routine trail maintenance portion of the program will be conducted by concessioners on selected trail sections as daily and weekly chores. Routine maintenance will include manure removal as discussed in Section 3.2.5.

The hot shot fire crew will be used for selected trail work, contingent upon its availability. Volunteers will be used as NPS resources allow for project coordination and supervision. The selected alternatives should be periodically re-evaluated. Should evaluations determine that progress is not being made to meet trail maintenance standards; the Superintendent reserves the right to close the use of a trail to concessioners. The performance of trail maintenance work will be considered during the evaluation process for each livery.

Should future funding sources become available for maintenance on concession used trails, the plan will be amended to reflect that change in policy.

3.2.2. Noxious Weed Dispersal

Noxious weeds are disruptive plants that are considered detrimental, destructive, injurious or poisonous to humans, native flora, or native fauna. Noxious weeds are non-native to the State of Colorado. These non-native plants occur at a given place as a result of direct or indirect, deliberate, or accidental actions by humans. Canada Thistle is a classic example of a noxious weed.

As described in Section 2.6.4., sufficient research has been conducted to conclude that horse manure contributes to the dispersal of noxious weed species in Rocky Mountain National Park. The park acknowledges that horses are not the only means of dispersal, but it is a dispersal method that the Park Service has a responsibility to mitigate. The park is mandated to preserve the natural resources for present and future generations. Noxious weeds tend to invade areas of disturbance, compete with native vegetation, and can change the abundance and distribution of native plants. The park's overall intent is to reduce these invasive type weeds.

The park has been controlling noxious weeds intermittently for over 30 years. The noxious weed control program was begun in 1960 to preserve native plant ecosystems, and to prevent noxious weeds in the park from infesting neighboring lands. It wasn't until 1985 that the park established a long-term monitoring and control program for noxious weeds (USDI-NPS Report No.1, 1987). In 1991 an Alien Plant Survey was conducted, and identified nine plants that are disruptive to native plants, or which readily establish in disturbed sites. The survey also concluded that there are approximately 45 acres of Canada thistle in the park (USDI-NPS Report No. 13, 1991). Mechanical (pulling) and chemical control methods of noxious plants are used by park staff. For the 1992 and 1993 seasons, 400 hours were spent by paid employees to control noxious weeds. The park uses volunteers to pull certain species that respond favorably to this type of treatment. In 1993, volunteers spent approximately 300 hours on noxious weed control.

No measures have been taken to control the introduction of noxious weeds in the park from horse manure. Boulder County implemented an Undesirable Plant Management Plan in 1991. Since 1991, the Rio Grande and San Juan National Forests of Colorado have operated under a Special Order from the Forest Supervisors Office banning the introduction of any weed filled forage. Colorado recognizes the need to manage noxious weeds in forage, and has enacted the Weed Free Forage Crop Certification Act of 1993 (an optional weed free crop certification program). As outlined in section 1.3 of this plan, the park has a legal responsibility to manage noxious weeds.

3.2.2. Noxious Weed Dispersal: Alternatives

1. Status Quo. Continue to encourage, but not require, liveries to obtain certified weed-free forage for horses using park trails.

2. Do not attempt to implement a program to control noxious weed dispersal as it relates to commercial horse operations.

3. Incorporate as mandatory for the permittees use of certified weed-free forage after the State Certification Program becomes fully operational, and there is grass forage available from a minimum of five growers. (Selected)

Mechanisms for Implementing the Selected Alternative

Alternative 3. Weed-free forage certification rules are currently being developed by the State, and are anticipated to be final in Spring of 1994. These rules are being adopted to carry out the provisions of the "Weed Free Forage Crop Certification Act of 1993." The park will continue to work cooperatively with the State during the development of the program. The rules, when adopted, will become part of this plan. The rules will include, but will not be limited to, procedures for certification of weed-free crops, inspection procedures, procedures for tracking and identifying certified forage, and violations. Specifications on the proof of intent the park will require to comply with this program will be discussed in individual operating plans.

The certified forage program shall become a part of every concessioner's operating plan, and will become effective in the summer of 1995. This will allow the program to be in operation for approximately one year. In order to use certified forage in the park beginning with the 1995 operating season, the liveries must obtain the forage in the summer of 1994. There must be a minimum of five certified weed-free grass forage growers available in the State to provide the liveries options and to sustain them. The park will provide all liveries with a list of available growers, as well as a copy of the certification program rules. Shall a livery have a specific grower it wishes to buy from; the concessioner may go through the certification program procedures to ensure certification of that particular crop(s).

The Colorado State Weed List is identified in Appendix D. Under Category I weeds, the State does not allow any tolerances of these species, nor will the park. These species have been determined as critical to control for the preservation of natural resources and natural ecological processes.

	Alternative (Status Quo)	Alternative 2	Alternative 3 (Selected)
Natural Resources	May not meet national and park mandates to preserve natural resources if certified feed not used.	Will not meet national and park mandates to preserve natural resources.	Would meet national and park mandates to preserve natural resources.
Soil and Vegetation	Park would not be cooperating with State and local agencies to implement "Undesirable Plant Management Plans."	Same as alternative 1.	Park would help control noxious weed problems and fulfill mandates outlined in the Federal Noxious Weed Act (1990 amended) and the State of Colorado Weed Free Forage Crop Certification Act of 1993.
Wildlife/ T&E Species	Weeds will continue to compete with native vegetation, and in the long term may contribute towards forcing some native plants into Threatened and Endangered status. Noxious weeds would provide less natural forage for wildlife.	Same as alternative 1.	May reduce impacts on wildlife and T&E species by controlling weeds.
Water	None	None	None
Wetlands/ Floodplain	Noxious weeds can potentially modify wetlands ecology	Same as alternative 1.	
Air Quality Cultural	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Visitor services would continue unhampered.	Same as alternative 1.	Visitors would still have horseback riding opportunities.
Concessions Operation	Liveries not required to purchase weed free hay. No change in operation.	Liveries do not have an obligation to voluntarily participate in the program, nor are they required.	Liveries would be required to purchase weed free forage. Operational costs increase.
Administration	None	Would not reduce the area or intensity of noxious weed disturbance that management must control.	An additional condition of operation the park would have to administer.

3.2.3. Continental Divide Rides

Section 2.6.1. describes the effects recreational use and trampling have on tundra ecosystems. Approximately 32 percent of the park is above treeline. Although some of the high altitude trails are of rock, many are on alpine vegetation and areas of late melting snow. Trampled tundra ecosystems may take several hundred years to recover. Horses increase the trampling damage on tundra due to the tearing action of the steei shoes, and the intense pressure of the horse load. Several studies have shown horse impacts to be much greater than hiker impacts (Weaver and Dale, 1978; Bainbridge, 1974; Finkleman, 1991; Hendee, Stankey. and Lucas, 1990). An experimental horse study by Nagy and Scotter (1974) found vegetation loss to be four to eight times greater from horse trampling than hiker trampling in a similar park environment to Rocky Mountain National Park, the Northern Rockies in Waterton Lakes National Park.

Commercial horse trips on tundra trails are allowed when snow has melted and resources will not be damaged (usually by August). The trails on top of the Continental Divide (Flattop, Tonahutu and North Inlet) are wet much of the year in some locations because of natural seeps flowing under and over the landscape, and because of climatic conditions. There currently are no commercial trip limits on how many horses are allowed over the divide. Hi-Country Stables, on the average, take trips every other day, beginning in August. Use by other liveries is permitted, provided they originate and end their trip outside the preferential right areas, but this is very unlikely due to the length of the ride. The summer of 1993 had a high snow pack, and consequently the Continental Divide ride was not open to commercial horse tours. This ride is a special service; it does not provide a service to the average park visitor.

3.2.3. Continental Divide Rides: Alternatives

1. Status Quo. Continue to allow unrestricted commercial horse trips over the Continental Divide during the peak summer season use period.

2. Allow commercial horse trips over the Continental Divide only when trails are free of snow. Limit the number of trips to three per week, either weekday or weekend.

3. Prohibit commercial horse use by any livery on trails within the tundra. This includes the Continental Divide ride, but allows for rides to the Flattop Mountain hitchrack from the East side of the park. (Selected)

	Alternative 1 (Status Quo)	Alternative 2	Alternative 3
Natural Resources	Would not meet national and park mandates to protect natural resources for present and future generations.	Would meet national and park mandates to preserve natural resources.	Same as alternative 2.
Soils and Vegetation	Adverse impacts to tundra soils and vegetation would continue.	Adverse impacts to tundra soils and vegetation may be minimized.	Would protect tundra ecosystems from any commercial horse impacts.
Wildlife/T&E Species	None	None	None
Water	Potential water quality impacts from manure entering water systems.	Reduce any potential water quality impacts from horse manure on trails.	Eliminate any potential water quality problems from horse manure on tundra trails.
Wetlands/Floodplain	Same as above for vegetation and water.	Same as above for vegetation and water.	Same as above for vegetation and water.
Air Quality	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Visitor services would continue unaltered.	Visitors continue to have opportunity to ride horseback over the continental divide.	Visitor needs still be met by other commercial horseback riding opportunities, but would not be given opportunity to ride over the divide.
Concessions Operations	Livery operations would continue without modifications.	Liveries would not be able to provide high number of trips. May limit potential revenues.	Liveries may offer alternate nine hour rides, such as the Bear Lake to Fern Lake, or Lawn Lake rides.
Administration	Park must evaluate trail conditions and communicate with liveries on opening dates.	Same as alternative 1.	Liveries would not provide the Continental Divide ride.

Alternatives Considered, but Rejected

1. Open Continental Divide Commercial Trail Rides any Time During the Year.

This alternative was considered, but rejected because use of snow covered trails above 11.000 feet by commercial horse tours would be very dangerous for the visitor and extremely detrimental to the resources. Most tundra trails are snow covered or icy until July or August, and begin receiving significant amounts of snow by November, and sometimes October.

Mechanisms for implementing Selected Alternative

Alternative 3. The park's selected alternative allows commercial rides to the Flattop Mountain hitchrack from the East side of the park. Park rangers patrolling the backcountry will report trail conditions to park management. Liveries will be kept informed of trail conditions and snow pack on the Flattop trail. Commercial tours to the hitchrack only will occur once the trail is free of snow. Access to trails from the Bear Lake and Trail Ridge Road corridors is limited by a preferential right use given to the interior concessioner. Exterior liveries may ride up to the Flattop hitchrack, but only if the ride originates outside the preferential right area.

3.2.4. Interior Liveries

The park's 1976 Master Plan identified the need to study the advantages and disadvantages of the interior liveries. The park was then to decide whether to retain or relocate the liveries outside the park. During public meetings that were held on the draft Master Plan for Rocky Mountain National Park at Denver, Grand Lake, and Estes Park in January, 1974, there were comments made specific to the interior liveries. In summary, 358 out of 376 individual letters were supportive of removing the interior liveries, along with one agency and 18 organizations. From oral presentations, 12 individuals were supportive of removing the interior liveries, while seven were supportive of retaining the liveries.

Currently, the High Country Stables contract expired by limitation of time on December 31, 1990, and since then, has provided authorized services pursuant to the terms and conditions set forth in the expired Concessions Contract CC-ROM0002-87 through an interim letter of authorization which expired on December 31, 1993.

No written decision has been made about retaining or relocating the interior liveries. Facilities have expanded at Moraine Park Livery as discussed in Section 3.2.4. Substantial evidence shows that Glacier Creek Livery is within a wetlands,
(refer to Section 2.7.6.).

One of the overall management objectives of the Master Plan is, "To permit no further expansion of concession operations requiring constructed facilities inside the park. Existing operations to be eliminated when no longer needed within the park boundary." The NPS has legal responsibility, as set forth in the Clean Water Act, Executive Order 11990-Protection of Wetlands, and the NPS floodplain Management and Wetlands Protection Guidelines, to exhibit leadership in the protection of wetlands. This includes, but is not limited to, "avoiding to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative..."

3.2.4. Interior Liveries: Alternatives

1. Status Quo. Continue to allow interior liveries to operate from existing locations with existing facilities.

2. Relocate Glacier Creek barn and corral from a wetland to an upland site within the park within three years from the date of issuance of a new contract. Allow housing facilities for a maximum of four caretakers at a new location. (Selected).

3. Remove 1990 dormitory facility at Moraine Park outside the park or to the Eagle Cliff government housing area within two years from the date of issuance of a new contract. Retain barn and corral in present location. Allow the 1984 dorm to remain and provide housing for a maximum of four caretakers. (Selected)

4. Consolidate all interior operations to the Moraine Park Livery location. Retain housing for a maximum of four caretakers.

5. Remove Glacier Creek Livery from the park.

6. Remove Interior Liveries from the park.

Alternatives Considered, but Rejected

1. Expand Interior Livery Facilities.

This alternative was considered, but rejected because it would be contrary to the 1976 Master Plan objectives 2 and 6 (Table 1).

IMPACTS FOR INTERIOR LIVERIES ALTERNATIVES

	Alternative 1 (Status Quo)	**Alternative 2 (Selected)**	**Alternative 3 (Selected)**
Natural Resources	The wetlands ecological processes would continue to be impacted at Glacier Creek Livery.	New Glacier Creek site impacted, and use of trails in new area. Old site restored to natural conditions.	Moraine Park 1990 dorm site restored.
Soils and Vegetation	Soil erosion and riparian vegetation impacts would continue to occur at Glacier Creek Livery.	Soils and vegetation in the Glacier Creek livery locations would be restored.	No additional impacts.
Wildlife/T&E Species	None	None	None
Water	Would not reduce the runoff impacts from the Glacier Creek Livery into Glacier Creek.	Water quality impacts would be reduced into Glacier Creek from the livery.	None
Wetlands/Floodplain	Does not meet need to restore and protect wetlands in the Glacier Creek Livery area.	Wetlands in the Glacier Creek Livery would be restored to their natural condition.	No additional impacts.
Air Quality	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Visitor recreational opportunities would not be affected.	Same as alternative 1.	Same as alternative 1.
Concessions Operations	Would not adversely impact current concession operations. Dorms at Moraine Park allowed to remain.	Facility relocation result in increased costs to concessioner. Business may be temporarily reduced or shifted to other liveries.	Concessioner housing needs addressed outside the park. increased costs for concessioner to move or build a dorm.
Administration	Does not meet the 1976 Master Plan objectives 5 and 6; meets objective 1, see Table 1.	Meets 1976 Master Plan objectives 1, 5 and 6, see Table 1.	Same as alternative 2.

IMPACTS FOR INTERIOR LIVERIES ALTERNATIVES

	Alternative 4	Alternative 5	Alternative 6
Natural Resources	Glacier Creek Livery restored to natural conditions. Greater impact at Moraine Park Livery because of increased numbers of horses.	Glacier Creek Livery area would be restored to its natural condition.	Both livery sites restored to natural conditions.
Soils and Vegetation	Increase in concentrated horse use at Moraine Park would increase soil erosion, vegetation trampling, etc.	Soils stabilized and revegetation efforts conducted at Glacier Creek Livery.	Soils stabilized and revegetation efforts conducted in both areas.
Wildlife/T&E Species	None	None	None
Water	Remove potential for water quality impacts into creek from livery.	Same as alternative 4.	Same as alternative 4.
Wetlands/Floodplain	Wetlands at Glacier Creek Livery would be restored.	Same as alternative 4.	Same as alternative 4.
Air Quality	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Hiker/horse conflicts reduced in Glacier Basin, but increased in Moraine Park. In-park horseback riding only at Moraine Park.	Same as alternative 4.	Horseback riding opportunities available outside park only. Hiker/horse conflicts reduced in Moraine Park and Glacier Basin.
Concessions Operations	Concessioner would only operate from one location, but increase use at Moraine Park location.	Concessioner loses revenues from Glacier Creek Livery. Concessioner's HAOT in park would be reduced.	Concessioner contract would not be reauthorized.
Administration	May need to address desire for additional visitor facilities: restrooms, parking, etc. Would not meet the 1976 Master Plan objectives 5 and 6; meets objective 1from Table 1.	Meets 1976 Master Plan objectives 1,4, 5 and 6, see Table 1.	Same as alternative 5. Trail maintenance needs reduced in the Glacier Basin and Moraine Park areas.

Mechanisms for Implementing Selected Alternative(s)

Alternatives 2 & 3. Contract renewal language will specify the relocation of Glacier Creek Livery, and removal of the 1990 Moraine Park dorm. Any relocation and/or new building costs will be borne by the concessioner. Compensation will be provided to the concessioner by the NPS for the improvements the concessioner made to the current liveries at actual cost less depreciation.

The park considers the net environmental benefit of moving Glacier Creek livery from a wetland site to an upland site as positive. Relocation would allow for restoration of the site, help prevent degradation to Glacier Creek, and the NPS would fulfill its obligation to protect wetlands as defined in the Clean Water Act, the Wetlands Executive Order, and NPS Wetland Guidelines. The park feels that relocation of the Glacier Creek livery within three years of a new contract issuance is reasonable. This will allow the concessioner to obtain funding and to construct the new facility. This also will allow the NPS to purchase existing possessory interest, and to conduct a formal analysis of potential relocation sites. The following is an outline of the process(es) the NPS will take to determine potential sites.

Product: Site Selection Analysis Plan and Environmental Assessment for Glacier Creek Livery.

Approach Strategy: Evaluate environmentally acceptable sites within Glacier Basin/Sprague Lake area.

Approach Steps (Process):
1) Develop a task directive to include a schedule.
2) Identify development objectives and constraints.
3) Consultation with concessioner and affected parties.
4) Alternative site suitability analysis. A site suitability analysis will include, but will not be limited to: soils, vegetation, surface features, slope and aspect, utilities, viewsheds (aesthetics), noise, visitor access, wetlands, cultural resources, wildlife, water quality, drainage, parking, and access by livery to trail systems.
5) Natural and cultural resources impact analysis on "affected environment" (similar to step 4, with formal archeological and historical clearances, and NEPA compliance).
6) Identification of full range of alternatives, including preferred alternative.
7) Consultation with concessioners and affected parties.
8) Public review of Draft Plan and EA.
9) Selection of alternative and notification to concessioner.

Time Frame: Begin project by June 21, 1994
End project by December 31, 1994

Responsibility: The National Park Service through the Division of Maintenance. An interdisciplinary group of professionals will be on the planning team, including, but not limited to, a Landscape Architect, Natural Resource Specialist, Cultural Resource Specialist, Engineer, and Trails Foreman.

When the final analysis and preferred alternative is approved, the plan will be incorporated into the language of a new contract.

Removal of the 1990 dorm at Moraine Park to a new location outside the park would reduce housing density within the park, and help meet the Master Plan objective to require all concessioner housing outside the park. If the dorm were to be built at the Eagle Cliff housing area, this would meet the Master Plan in part by relocating concessioner housing away from the core part of the park to the periphery. The NPS believes it is reasonable to move the dorm within two years of the issuance of a new contract. The park recognizes the need for caretakers on site 24 hours a day at each livery location, and believes that four at each site will provide the necessary assistance under emergency situations. Daily care of stock, facility maintenance, and other chores are provided by wranglers during normal working hours. Additional support for fire, law enforcement, emergency medicals, and other emergency situations is provided by the NPS, Estes Park Volunteer Fire Department, and the Estes Park Medical Center. It is the park's intent to house all concessioner employees, excluding the caretakers, outside the park or in the Eagle Cliff NPS residential area.

3.2.5. Horse and Hiker Conflicts

Sufficient documentation, as discussed in section 2.6.5., reveals that there is a hiker and horse user conflict on park trails. Multiple trail use conflicts arise for a variety of reasons, including: different expectations of recreational experiences, miscommunications, and a lack of understanding of each other's goals. Social conflicts between hikers and horseback riders are difficult to resolve because this involves behavior modification, but there are methods that may help minimize confrontations.

There are approximately 260 miles (83 percent) of designated park trails available for horse and hiker use; the remaining 17 percent are hiker only trails. Although most of the park trails are shared by hikers and horseback riders, there are specific trails that are used primarily by commercial liveries. Conflicts arise where there is heavy use on trails by both hikers and horseback riders. Conflicts also arise when a hiker is not aware that a trail is used primarily by horse riders.

During the public involvement process of the Bear Lake Developmental Concept Plan (1979), 92 percent of the respondents discouraged horseback riding on hiking trails. Approximately two-thirds of the respondents discouraged horseback riding because of conflicts; horse manure; smell; flies; trail erosion; and inappropriateness of horses in the park. There were 17 horse-related comments received from a 1990 survey for the Wild Basin/Longs Peak/Lily Lake Developmental Concept Plan. Only one comment spoke positively about horse use. The remainder of the comments supported horses being banned or separated from hikers because of manure degrading the hiker's experience, environmental damage caused by horses, and the crowding of the Longs Peak/Chasm Lake Trail.

3.2.5. Horse and Hiker Conflicts: Alternatives

1. **Status Quo. Make no attempt to reduce the horse and hiker conflicts.**

2. **Designate and sign selected trails as "Primary Horse Use" zones.** Sign areas primarily set aside for horse use. Designation would not prohibit other visitors from hiking or riding the trails.

3. **Provide information to visitors on horse use in the park by signing trails as "Heavy Horse Traffic," and by distributing an Equestrian Site Bulletin. (Selected).** This will allow visitors to make informed decisions about where to hike.

4. **Require liveries, as part of the routine trail maintenance program, to remove manure from selected heavily used trail sections, and within 1/4 mile from each livery on trails within the park. (Selected).** Manure from certain trail sections should be removed with a shovel and dispersed off trail as far as possible. Manure removed from park trails within a 1/4 mile from a barn may be conducted with a wheel barrel to ensure completeness of removal.

IMPACTS FOR HORSE AND HIKER CONFLICTS ALTERNATIVES

	Alternative 1 (Status Quo)	**Alternative 2**	**Alternative 3 (Selected)**
Natural Resources	User group conflicts would continue to affect natural resources through trail widening, braiding, etc.	No additional impacts.	Informed visitors will help the **NPS** protect natural resources.
Soils and Vegetation	Soils and vegetation impacts in high horse/hiker conflict areas will continue.	Same as alternative 1.	Informed visitors will understand trail etiquette and other trail users.
Wildlife/T&E Species	None	None	None
Water	None	None	None
Wetlands/Floodplain	None	None	None
Air Quality	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Visitors would not be educated on park trail use. Expectations for hikers may not be met when using heavy horse traffic trails.	Visitors informed of trails used primarily by horses, can plan trip accordingly and know what to expect on those trails. May cause a sense of segregation between hikers and riders.	Visitors would be informed of recreational horse opportunities, heavy horse traffic zones, and environmental ethics, thus contributing to a more enjoyable experience. Visual impact by signage.
Concessions Operations	None	None	None
Administration	Would not address 1976 Master Plan objective 4 from Table 1.	Addresses Master Plan objective 4 from Table 1.	Same as alternative 2. More signs to build and maintain. Easy to implement signing, but may be difficult to monitor affects.

IMPACTS FOR HORSE AND HIKER CONFLICTS ALTERNATIVES

	Alternative 4 (Selected)
Natural Resources	Manure will not be a main agent in the dispersal of noxious weeds once the weed-free forage program is required by all permitted liveries.
Soils and Vegetation	Noxious weed infested manure will not impact native plant species significantly because of the weed-free forage the liveries will be required to feed their permitted horses. Manure removal techniques that the liveries will be required to perform will enhance the protection of the soils and vegetation in heavy horse traffic areas.
Wildlife/T&E Species	Park trails that are within 1/4-mile of the livery barns will be free of manure, thus removing the potential of weed infested manure from impacting any plants that are or may become threatened or endangered species. Manure removal should not affect the supply of forage available to support the diverse wildlife species found in the park.
Water	Should help reduce any potential manure runoff from trails into park creeks, streams, rivers, and lakes.
Wetlands/Floodplain	Manure removal should also enhance the quality of wetland ecosystems.
Air Quality	Manure removal will help reduce the smell associated with horse deposits.
Cultural Resources	None
Visitor Use and Experiences	Hiker/horse conflicts will be reduced in the areas where manure is removed from park trails. This will increase the hiker's enjoyment and wilderness experience in the park.
Concessions Operations	Some increase in operation costs according to how much manure must be removed, and the time spent. Since manure removal will be within 1/4-mile of the barns, this could be incorporated into a wranglers daily chores and the costs should not be too significant to conduct twice weekly. Manure removal from selected trail sections of the park once a week may be more labor intensive, but packing out will not be required. Some liveries will be required to remove more manure than others, depending on the heavy use trail sections selected.
Administration	The park will have to monitor manure removal as written in the concessioner operating plans. Manure removal will be considered when each livery is evaluated.

Alternative Considered, but Rejected:

1. Close more miles of trails to commercial horse use. Section 3.2.3. does address the closure of the Continental Divide ride to liveries beyond the Flattop Mountain hitchrack as accessed from the east. The park feels that trails crossing tundra, especially the North Inlet and Tonohutu that cross the Contintental Divide, are extremely fragile and should not be traversed by commercial horse parties. The park believes it necessary and appropriate that the remainder of park trails remain open to commercial horse use.

2. Open more trails to commercial horse use. The park believes that the amount of trails currently available for commercial horse use are sufficient to provide approved necessary and appropriate services to visitors.

Mechanism for Implementing Selected Aiternative(s):

Alternative 3. Trails in Moraine Park, Glacier Basin, Little Horseshoe Park, Upper Beaver Meadows, and Emerald Mountain will be signed near trailheads as heavy horse traffic zones. The signs will meet NPS standards and be solely informational. The intent of these signs is to inform visitors of heavy horse traffic areas, not to force hikers to use other trails.

Alternative 4. Manure removal will become part of a concessioner's operational requirements. The park believes it is fair and appropriate for liveries to clean a portion of the trails that receive a heavy concentration of manure. These specific areas will be defined by the park and assigned to each livery. Some of these areas may be at hitchracks near trails. A shovel will be needed to remove the manure and widely disperse it off trail. Wide dispersal off trails will be required once a week, and after certified weed-free forage is used by the liveries.

The clean up of manure on park trails within 1/4-mile of barns is self explanatory. All manure will be removed from the trail and disposed of at the barn. This will be required twice weekly. This may not affect several liveries outside the park. Concessioners and other horse owners have informed the park that the majority of horse deposits occur within the first 1/4-mile of a ride. All manure removal will be considered part of routine maintenance; therefore trust fund monies may not be used for this requirement.

3.2.6. Spatial Distribution of Commercial Horse Use

The 1976 Master Plan stated that "No increase in *horse use* by concession or permit should be allowed." Since 1976, a "moratorium" on new authorizations has been in effect, resulting in a decrease of authorizations from 25 (29 locations) in 1976 to 15 (20 locations) in 1993. Since 1976, approximately 93 horses authorized by permit have been reallocated to four liveries. The total number of horses used by Glacier Creek and Moraine Park liveries in 1974 was 86. In 1977, the number increased to 104, then to 110 in 1978, and currently stands at 150 permitted horses allowed on park trails at any one time by both liveries. National Park Village was authorized in 1977 to increase the number of horses from 16 to 30 at the request of the concessioner. Wind River Ranch was authorized an increase of 15, resulting in a total of 40 HAOTs. This allows for continued use on trails within the Lily Lake and Baldpate lands, acquired by the park in 1992. Currently, the entire concessioner's total number of horses permitted to enter the park at any one time is 626. The 626 HAOT includes 10 horses, formerly used by Winding River Ranch, that may be reallocated, and 20 horses from Elkhorn, whose authorization has been under suspension and will be offered for renewal.

Commercial horse use is not evenly distributed throughout the park. In 1993, east side liveries contributed 86 percent of the park's total commercial horse use. Also in 1993, 72 percent of the park's total horse use originated from the Glacier Creek, Moraine Park, National Park Village North, and YMCA liveries; the Tahosa Valley liveries contributed 10 percent; and the other liveries contributed the remaining four percent. The west side contributed 14 percent of the total park use. In the past 18 years, total park use, as measured by trips, varied from 36,299, to 52,194, with a yearly average of 41,600. This is nearly the same as the number of trips taken in 1976 (41,700 trips). Thus, the current 20 livery locations have increased their use to absorb the business from previous liveries, refer to Appendix A.

3.2.6. Spatial Distribution of Commercial Horse Use: Alternatives

1. Status Quo. Continue to permit the current number of authorized HAOT (626) to enter the park for commercial riding purposes. (Selected).

2. Decrease the number of authorized Horses at One Time (HAOT) for the Moraine Park, Glacier Creek and National Park Village North Liveries to 1976 levels.

3. Limit number of trips each livery takes per season to 1976 level or last 10 year average, whichever is greatest. Current levels of HAOT would not change.

4. Allow horses only in areas of low hiker use and stable soils.

5. Reallocate (87) HAOT to 1976 levels, and allow for use in Cow Creek/North Fork, Kawuneeche, and Wild Basin areas.

IMPACTS FOR SPATIAL DISTRIBUTION OF COMMERICAL HORSE USE ALTERNATIVES

	Alternative 1 **(Status Quo) and (Selected)**	**Alternative 2**
Natural Resources	Natural resource and trail impacts associated with 626 HAOT would be mitigated by proposed actions outlined in the plan.	Natural resource and trail impacts in the Glacier Creek, Moraine Park, and Aspenglen/ Little Horseshoe Park areas would be reduced.
Soils and Vegetation	Soil erosion and vegetation trampling associated with 626 HAOT would be mitigated by trail maintenance program.	Soils and vegetation trampling in these areas may reduce.
Wildlife/T&E Species	None	None
Water	No additional impacts.	Less manure and runoff into waters.
Wetlands/Floodplain	No additional impacts.	Same as alternative 1.
Air Quality	None	None
Cultural Resources	None	None
Visitor Use and Experiences	Visitor recreational opportunities and experiences would remain high.	Visitor's desire to experience the park via horseback would still be met by interior and exterior liveries, but to a lesser degree.
Concessions Operations	Livery operations would not be allowed to increase in number, i.e., the authorized HAOT.	Revenues of the four liveries would decrease because of fewer horses available for use.
Administration	Trail maintenance needs would continue to be high.	Would reduce, but not eliminate the trail maintenance needs in these specific areas.

IMPACTS FOR SPATIAL DISTRIBUTION OF COMMERCIAL HORSE USE ALTERNATIVES

	Alternative 3	Alternative 4	Alternative 5
Natural Resources	Impacts associated with trips would continue, particularly in Glacier Basin, Aspenglen/Little Horseshoe Park, and Moraine Park areas.	Impacts would be both lessened in degree and more dispersed.	Additional natural resource impact in Cow Creek/North Fork, Kawuneeche, and Wild Basin.
Soils and Vegetation	Soils and vegetation trampling impacts may be reduced.	Soil erosion substantially reduced, even without maintenance program.	Potential for increased soil erosion and vegetation trampling in areas that currently receive low horse traffic.
Wildlife/T&E Species	None	None	None
Water	None	Reduce soil erosion into water sources.	Potential for impacts from manure and runoff into waters of low horse use.
Wetlands/Floodplain	None	None	None, if do not ride on wetlands
Air Quality	None	None	None
Cultural Resources	None	None	None
Visitor Use and Experiences	Visitors may not have opportunity for horseback ride if they arrive after trip quota has been reached.	Visitors would not be able to experience many popular areas by horseback.	Potential for increase conflicts between hikers and horseback riders in areas where currently this is not a major issue. More horses available for visitor use.
Concessions Operations	Liveries may use all their allocation of trips if they operate strictly on basis of maximum demand. Liveries would have to keep precise and accurate use records for reporting.	Would be very restrictive, considering there are very few areas in the park that would meet both of these requirements	An increase of trips would be expected from the 87 horses. Concession revenues would increase.
Administration	Meets Master Plan objective 2 from Table 1. Very difficult to administer and monitor.	Would not address the issue of "no increase in horse use" because use may increase in low hiker use areas.	Would not meet Master Plan objective 2 from Table 1. Increase need for trail maintenance. More permits, liveries, etc., to administer

Alternative Considered, but Rejected

1. Dramatically reduce commercial horse use, with the intent of eventual elimination of commercial horse use from Rocky Mountain National Park. The park believes that recreational horse use is appropriate and compatible with the preservation of the park. if managed under the guidance of this plan. Elimination of horse use in the park is not necessary. It is necessary to balance various recreational uses in the park so as to preserve park resources for the enjoyment of future generations.

Mechanisms for Implementing Selected Alternative

Alternative 1. Business will be conducted as usual through commercial authorizations. In order to preserve park resources and provide visitors with a spectrum of recreational opportunities, ranging from modem and developed to primitive and undeveloped, the number of HAOT will not be allowed to increase beyond 626 for the entire park. Note that it is not the intent of the NPS to provide for the unlimited demand for commercial horse use, but rather the NPS believes it has selected alternatives which appropriately balance the various park uses. Also, it is not the park's intent to reduce or increase horse use, but to keep it at current levels, and to reduce resource impacts and hiker/horse conflicts through the mitigating measures identified in this plan. The park believes the selected alternative for Spatial Distribution is necessary to meet the objectives of the Master Plan.

3.2.7. Winter Use/Extended Seasonal Use

Interest has been expressed to conduct winter commercial trail rides in Rocky Mountain National Park. Heavy snows may cover high country trails as early as October. Some trails above tree line may not completely dry until August. Approximately 32 percent of the park is above tree line. The rapid and unpredictable changes in Rocky Mountain weather during the Spring and Fall can bring either high winds, snow, and freezing rain, or warm and sunny days. Park trails are not designed for horse use during winter conditions. It is unrealistic to expect horses to stay on trails given changing conditions due to snow and ice. As discussed in section 2.6.1., recreational use on trails of wet, steep slopes are susceptible to the most resource damage.

3.2.7. Winter/Extended Seasonal Use: Alternatives

1. **Status Quo. Continue to allow commercial horse use to occur in the park only during the operating season (from the second Saturday of May through the third Sunday of October). (Selected).** Higher elevation trails will only be open to commercial horse use when they are free of snow.
2. **Allow for winter and extended seasonal commercial horse use.**

IMPACTS FOR WINTER USE/ EXTENDED SEASONALUSE ALTERNATIVES

	Alternative 1 **(Status Quo) and (Selected)**	**Alternative 2**
Natural Resources	Protects natural resources and trails from adverse impacts in conjunction with tundra ride restrictions.	High potential for increased natural resource impacts exists because of use on wet and snowy trails.
Soils and Vegetation	Protects soils from eroding during times when trails are wet and snowy. Will allow spring growth to occur in areas experiencing braiding.	High potential for soil erosion and vegetation degradation because of trail conditions in winter.
Wildlife/T&E Species	None	Potential for horse tour encounters with elk that are migrating to lower elevations for winter range
Water	No additional impacts when implemented in conjunction with relocation of Glacier Creek Livery.	Potential for trail erosion runoff into water systems during time when trails are still snowy and wet.
Wetlands/Floodplain	No additional impacts when implemented in conjunction with relocation of Glacier Creek Livery.	Increases impacts during high moisture periods on 21 miles of trails that are within wetlands.
Air Quality	None	None
Cultural Resources	None	None
Visitor Use and Experiences	Use by average visitor would not be affected because there is little expectation to experience Rocky Mountain National Park in the winter, or on snowy trails.	Visitors given opportunity to view the park in winter and the off-season by horseback.
Concessions Operations	Commercial operations would not be affected because they currently do not operate in the park in the winter.	Commercial costs would increase to pay for longer operating season. Operators have an opportunity to increase revenues because of longer season.
Administration	Meets Master Plan objective 2 from Table 1.	Would not meet Master Plan objective 2 from Table 1 because horse use would increase. Park would need to acquire funds to deal with additional trail maintenance and concession management.

Alternative Considered, but Rejected

1. Commercial horse use on all possible trails in the winter/extended season.

Winter horse travel in the high country of the park is frequently impossible and hazardous because of the high snow pack and high winds. Avalanche hazards exist in many areas of the park. Although some south facing slopes may not have as much snow and may dry out periodically, the weather is very unpredictable. Allowing commercial horse rides to occur during the winter may increase resource damage on trails that are very wet or snow covered. This service is not necessary in the winter months. If concessioners were given a winter use period, they would be obligated by permit or contract to provide a minimum of services to the public throughout the winter. This alternative would be very difficult, if not impossible to administer. Given the fact that the park has a minimum number of rangers on duty during the winter months, the park could not keep up with the status of trail conditions for commercial horse use.

Mechanism for implementing Selected Alternative

Alternative 1. The ranger staff, along with the park trail crew will be responsible for monitoring trail conditions. Trail conditions will be reported to the management assistant. Park management will inform liveries as to when trails are free of snow and may be used. Higher elevation trails will be critical to monitor and report their snow melt or removal.

3.2.8. Length of Rides

Currently, the park policy on the length of commercial horse rides is a minimum of two hours. This is the most popular ride for the liveries. Inquiry has been made in the past to conduct one-hour rides within the park. Some operators state that visitors want to ride, but two hours is too long, especially for family groups and first time riders. Many liveries outside the park already offer one-hour rides on adjacent park lands, having similar scenic qualities and trail riding opportunities. Interior liveries have expressed a desire not to conduct one-hour rides because of the increased costs for feeding, watering, wrangler time handling the animals, and preparation for each ride.

3.2.8. Length of Rides: Alternatives

1. **Status Quo. Require a minimum of two-hour horse rides. Do not allow one-hour rides inside the park. (Selected).**

2. **Allow for additional one-hour loop trails to be identified, or Constructed, and maintained by concession operators. These one-hour loops may be part of an existing trail and/or a new trail.** The stipulations for this alternative to be acceptable include:

   a. Trail maintenance on one-hour loops will be the responsibility of assigned livery, in addition to concessioner fees and required overall trail maintenance program.

   b. Livery must maintain loop to NPS standards; otherwise, trail will be closed to use.

   c. If loop trails require construction, livery must provide construction funds and trail must be located on suitable terrain. An environmental assessment and cultural resource compliance report must be prepared for any trail construction, at the expense of the concessioner.

IMPACTS FOR LENGTH OF RIDES ALTERNATIVES

	Alternative 1 **(Status Quo) and (Selected)**	**Alternative 2**
Natural Resources	Impacts that currently exist on two-hour rides would be reduced through enhanced maintenance program.	Natural resource impacts concentrated and intensified on one-hour ride trails, but mitigated by mandated trail maintenance program. Current use on private lands could be transferred to the park.
Soils and Vegetation	Soils erosion and vegetation trampling that currently exist would be mitigated through enhanced maintenance program.	Additional vegetation and soils impacts during trail building. Continued long-term impacts in areas where there is currently no one-hour use.
Wildlife/T&E Species	None	None
Water	None	None
Wetlands/Floodplain	None	None, provided that new trail sections are not constructed through wetlands.
Air Quality	None	None
Cultural Resources	None	None, provided that new trail sections do not cross culturally significant sites.
Visitor Use and Experiences	Hiker/horse conflicts would be mitigated with the implementation of the horse/hiker alternatives. Visitors may experience more of the park in two-hour than one-hour rides, depending on livery used.	Hiker/horse conflicts may be reduced if liveries primarily use the one-hour loop trails. Should traditional rides continue, conflicts would continue and additional conflicts would occur on one-hour trails in high visitor use areas, such as Moraine Park and Beaver Meadows.
Concessions Operations	Liveries would not have opportunity to offer one-hour rides within the park, although many exterior liveries already offer one-hour rides outside the park on USFS or private property.	Liveries could offer one-hour rides inside the park, and conduct more trips. Increases cost to liveries for trail construction and maintenance, and EA preparation. Revenues may not increase because of added work load on wranglers to prep horses and riders every hour. Horses tire
Administration	Trail maintenance needs (funds) would continue to be a high priority in two-hour ride areas. Meets Master Plan alternatives 2 and 6 from Table	Meets Master Plan objective 3 from Table 1. Park would not have to maintain loops, but would have to administer concession work. May be difficult to identify one-hour loops for all liveries. More user horse days per year for park to administer. More trails for park to manage.

Mechanism for Implementing Selected Alternative

Alternative 1. Business will be conducted as usual. Use will continue to be reported to the park monthly. No livery operational nor park administrative changes will be required.

3.2.9. String Size

The size of horse parties (string size) may be thought by some as more of a social science issue, than an ecologically related issue. A visitor study conducted in Rocky Mountain National Park determined that 65 percent of hikers disapprove of large groups of rented horses on park trails (Trahan, 1977).

There is no National Park Service standard for horse day use string size. Saguaro National Monument's Wilderness has a horse day use string limit of 15. Glacier National Park's Private Stock Use brochure states, "The day use limit shall be no more than 10 animals in a party, with some exceptions." Grand Teton National Park limits horse party size to no more than 12 head of stock for day use. The White River National Forest in Colorado, under its Wilderness Special Regulations, has a combined party size limit of 25 people and livestock for the Hunter Fryingpan and Holy Cross Wildernesses. However, on the Snowmass Maroon Bells Wilderness in Colorado, the limit is 10 people and 15 livestock. Rocky Mountain National Park's current policy on commercial horse string size is a maximum of 20, with a ratio of one wrangler per one to nine horses, and each string separated by 15 minutes.

3.2.9. String Size: Alternatives

1. Status Quo. Keep string size at a maximum of 20 horses per ride separated by 15 minutes. (Selected).

2. Reduce the string size from 20 to 12, with a separation between each string of 30 minutes.

IMPACTS FOR LENGTH OF RIDES ALTERNATIVES

	Alternative 1 (Status Quo) and (Selected)	Alternative 2
Natural Resources	No additional impacts.	Potential for natural resource and trail impacts to decrease only if total horse use is reduced. No additional impacts if use remains the same.
Soils and Vegetation	No additional impacts.	If horse use is reduced, soils and vegetation may recover in long term. No additional impacts if use remains the same.
Wildlife/T&E Species	No additional impacts.	Same as alternative 1.
Water	None	None
Wetlands/Floodplain	No additional impacts.	Same as alternative 1.
Air Quality	None	None
Cultural Resources	None	None
Visitor Use and Experiences	Visitors would continue to encounter large horse parties on identified heavy horse traffic trails. Opportunity for horseback riding not affected.	Hikers less likely to encounter large horse parties, but likely to encounter more and smaller parties. Horseback riding opportunities still exist.
Concessions Operations	None	Operators would have ride scheduling delays, more time required to organize smaller rides, and likely less revenues. Would continue to require two wranglers, and thus increase operational costs per rider.
Administration	None	May be more consistent with other parks and adjacent wilderness areas

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LIST OF CONSULTANTS

The following agencies, organizations, businesses and individuals have been consulted in the development of the Commercial Horse Use Plan and Environmental Assessment.

U.S. Congress

Senator Hank Brown (R)
Senator Ben Nighthorse Campbell (D)
Representative Wayne Allard (R CO-4)
Representative Joel Hefley (R CO-5)
Representative Scott McInnis (R CO-3) ^
Representative Dan Schaefer (R CO-6)
Representative Patricia Schroeder (D CO-1)
Representative David E. Skaggs (D CO-2)

Federal Agencies

National Park Service:

Washington Office, Planning and Compliance Rocky Mountain Regional Office, Denver, Colorado Grand Teton National Park, Wyoming Yellowstone National Park, Wyoming Grand Canyon National Park, Arizona Saguaro National Monument, Arizona Glacier National Park, Montana Sequoia-Kings Canyon National Park, California Pinnacles National Monument, California Big Bend National Park, Texas Buffalo National River, Arkansas

U.S. Forest Service:

Arapaho-Roosevelt National Forest, Colorado Rio Grande National Forest, Colorado San Juan National Forest, Colorado White River National Forest, Colorado Bridger-Teton National Forest, Wyoming Intermountain Research Station, Ogden, UT Pacific Northwest Research Station, Portland, OR Rocky Mountain Research Station, Fort Collins, CO Forestry Sciences Lab, Missoula, MT Flathead National Forest, Montana

Bureau of Land Management: San Juan Resource Area, Utah U.S. Fish & Wildlife

Service: Colorado Fish and Wildlife Assistance Office

State of Colorado Colorado State Parks: Lory
State Park State Trails Coordinator

Colorado Division of Wildlife

State of Arizona
Arizona State Parks: State Trails Coordinator

Local Government
Larimer County Parks
Estes Park Chamber of Commerce
Grand Lake Chamber of Commerce
Loveland Parks Division
Fort Collins Parks & Recreation Department
Estes Valley Recreation & Park District
Berthoud Recreation Department

Organizations
Colorado Mountain Club
Sierra Club, Southwest Region
Wilderness Society
Colorado Horsemen's Association
Larimer County Horsemen's Association
National Parks & Conservation Association, Rocky Mountain Region
Western Horseman
Backcountry Horseman of America
Backcountry Horseman of California
Backcountry Horseman of Montana
Backcountry Horseman of Washington
Backcountry Horseman of Idaho
Backcountry Horseman of Colorado
National Outdoor Leadership School
Boulder County Horseman's Association
The Nature Conservancy, Colorado
Colorado Environmental Coalition
Rocky Mountain Nature Association
Trail Ridge Riders, Estes Park, CO
Rooftop Riders, Estes Park, CO
Jefferson County Horsemen's Association

Business
Hi Country Stables, Inc., Boulder, CO
Winding River Guest Ranch, Grand Lake, CO
Meeker Park Lodge, Allenspark, CO
Wild Basin Lodge, Allenspark, CO
Elkhorn Stables. Estes Park, CO
Winding River Resort Village Campground, Grand Lake, CO
Wind River Ranch, Estes Park, CO
National Park Village Livery, Estes Park, CO
Aspen Lodge and Guest Ranch, Estes Park, CO
Sombrero Ranches, Inc., Boulder, CO
Silver Lane Stables, Estes Park, CO
YMCA of the Rockies, Estes Park, CO
Cheley Camp, Estes Park, CO
Mountain Prairie Girl Scout Council, Fort Collins, CO

Education Institutions
Colorado State University, Fort Collins, CO University of Northern Colorado, Greeley, CO University of Montana, Missoula, MT Texas Tech. University, Lubbock, TX

CONSULTATION AND COORDINATION

Correspondence between the commercial liveries and Rocky Mountain National Park precedes 1960. The consultation and coordination process for this plan began in June, 1992. The various agencies, organizations, and individuals previously listed were given the draft Commercial Horse Use Concession Management Plan and Environmental Assessment in the summer of 1993 for review.

The public was kept informed, and played an active role in the development of this plan. This was accomplished through:

1. Scoping Meetings in September, 1992
2. Designation of Bob Irvin (private horse owner) to the park planning team
3. Equestrian Planner Newsletter, Equestrian Site Bulletin
4. Coordinating Committee
5. Presentations by park staff to riding clubs/horse enthusiasts
6. Formal public review period

The scoping meeting held in September of 1992 helped the park understand the public's great interest in horse use within Rocky Mountain National Park. It also helped the park refocus the planning efforts to commercial use. The meeting attracted over 200 horse enthusiasts. Many misunderstood the park's intentions regarding horse management, and believed the park wanted to eliminate horse use. It has never been, nor is it the park's intention to eliminate horse use.

As a result of the meeting, Bob Irvin, commercial livery operator and horse enthusiast, was identified by the public to become a member of the planning team. Mr. Irvin became an active team member, attending meetings and reviewing plan drafts.

The Equestrian Planner Newsletter was developed to inform the public at large throughout the planning process. The first issue, published in February, 1993, included a letter from the Superintendent and a summary of comments received at the September, 1992 meeting. A majority of the comments received concerning the commercial horse plan are from private horseback riders. The second issue of the newsletter, distributed in June. 1993, included a discussion on the coordinating committee, status of the plan, and the new equestrian site bulletin. The third newsletter was an executive summary of the draft plan. The final newsletter was an executive summary of the final plan. All individuals on the mailing list received an executive summary of the plan. Both the third and final newsletters offered individuals the opportunity to receive a complete copy of the draft and final plan.

The Coordinating Committee was established in the Spring of 1993. The purpose of the committee was to involve the public to the fullest extent possible through the dissemination of information to each member's constituents. The draft plan was provided to the Coordinating Committee for review prior to general public review. The committee consisted of representatives from the following:

Commercial liveries - East side
Commercial liveries - West side
Private horse enthusiasts - East side
Private horse enthusiasts - West side
Colorado Mountain Club
Sierra Club
CSU Extension Horse Specialist

The park staff was invited to speak to the Trail Ridge Riders, and the Elizabeth Parker Riding Club regarding private horse use in the park and the park's commercial horse plan. Members of the staff were also presenters at the May 22, 1993, Horse Trails Workshop in Estes Park, Colorado. The event attracted over 100 individuals. Some topics included saddle fitting, horse feeding and nutrition, minimum impact trail riding, and recreational opportunities in Rocky Mountain National Park.

The Coordinating Committee reviewed the draft plan prior to general public review. The formal public review process occurred August 3rd through November 1, 1993.

PLANNING TEAM:

Craig C. Axtell, Chief of Resources Management, Rocky Mountain N.P.
Douglas Caldwell, Public Information Officer, Rocky Mountain N.P.
Joseph Evans, Chief Ranger, Rocky Mountain N.P.
George Havens, Trails Foreman, Rocky Mountain N.P.
Bob Irvin, Private Citizen, Estes Park, Colorado
Judy Jennings, Acting Chief of Concessions. Rocky Mountain Region
Donna Moeller, Management Assistant, Rocky Mountain N.P.
Georgina A. Pearson, Natural Resources Specialist, Rocky Mountain N.P.
Jim Richardson, West Unit Backcountry Ranger, Rocky Mountain N.P.

APPENDIX A.

LIVERY	Trips 1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	
Alkaspark	NR	169	192	248	114	286	226	200	227	23	31	170	15	987	29	12	8	21
Aspen Lodge	45	227	960	1,068	NR	339	432	196	57	95	795	354	346	69	295	590	748	810
Chelsey Camp	477	451	415	440	420	419	606	633	657	601	720	1,531	540	667	514	569	121	481
Elkhorn	1,783	2,680	3,423	3,082	3,780	3,972	3,576	2,712	2,047	2,998	2,620	2,418	2,077	1,502	3535	3,037	470	0
Glacier Creek	5,364	4,812	5,600	3,956	4,425	4,021	4,540	3,974	5,336	4,436	2,854	4,688	5,065	6,646	7,036	8,653	8,557	8,650
Sombrero-Glen Haven	13	63	4	NR	19	68	92	1,105	847	55	171	51	43	46	35	32	39	38
Lake Guest Ranch	155	1,382	974	392	303	312	599	276	933	324	331	714	513	682	1,018	479	533	426
Meadow Mtn. Ranch	NR	180	158	336	55	162	341	27	358	224	1,222	380	39	99	927	1,083	216	47
Meeker Park Lodge	109	77	106	608	607	677	456	466	419	483	493	953	839	889	595	287	471	361
Moraine Park	7,691	6,727	6,280	5,221	5,420	6,634	5,940	5,852	6,961	7,234	6,015	6,317	5,905	8,180	8,541	10,930	9,852	8,918
Nat'l Park Village	4,972	4,038	4,069	2,252	3,982	5,050	3,417	5,365	5,840	7,699	7,134	8,533	10,177	11,252	11,104	11,972	10,682	10,643
Sitter Lane	140	627	631	700	601	701	627	551	737	635	355	444	360	471	549	604	503	818
Sombrero-Grand Lake	4,843	5,206	7,494	2,202	5,069	670	2,502	2,428	2,893	1,376	2,612	2,950	1,632	NR	1,304	433	3,178	4,806
Wild Basin	964	564	808	1,742	1,612	1,532	1,116	1,861	982	754	750	710	655	346	722	454	1,150	1,896
Winding River Ranch	159	39	29	82	1,217	87	75	11	50	63	108	53	1,995	688	267	962	19	0
Winding River Resort	1,839	1,762	2,068	1,551	1,347	1,792	1,255	1,308	1,346	1,133	1,869	1,401	NR	1,555	470	396	1,953	1,520
Wind River Ranch	448	573	644	961	722	558	552	816	417	856	511	459	647	688	95	671	812	1,051
YMCA	6,870	7,268	6,513	5,455	6,072	4,773	5,172	3,807	4,968	4,465	5,151	4,568	5,859	5,491	5,344	5,184	4,520	5,236
Longs Peak Inn	837	1,162	1,153	1,354	1,031	1,103	1,146	1,032	852	1,104	896	901	610	773	720	1,194	0	0
Sombrero-Estes Park	273	139	283	98	24	107	48	49	71	151	104	13	14	13	NR	NR	NR	370
Lazy H Guest Ranch	Permit revoked 1974, reinstated in 1984, not renewed 1989.								76	106	69	NR	6					
Indian Head Ranch	662	1,346	1,764	3,559	804	758	546	855	623	847	1,400	1,123	Ranch acquired by NPS					
Camp St. Malo	273	1,651	3,942	133	3,256	3,926	3,669	3,617	3,396	Camp remodeled and livery not reopened.								
Sun Valley Ranch	539	948	471	483	298	1,281	279	171	67	24	NR	NR	NR					
Double JK Ranch	NR	NR	NR	395	689	595	475	593	NR	613	611	Sold to Salvation Army. Permit not transferred.						
Rustic Stables	2,644	1,828	3,496	2,805	3,283	Permit not renewed 1980.												
Arapaho Stables	57	78	137	Permit terminated due to boundary change. Operation in USFS, not NPS.														
Columbine	543	612	580															
Beaver Point Livery	No use statistics on record.																	
Chalet-EP.	No use statistics on record.																	
Total	41,700	44,609	52,194	39,124	45,150	39,153	37,687	37,905	40,160	36,299	36,822	38,731	37,337	41,054	42,800	47,542	43,832	46,

NR-No use reported.
133-Permit transferred from Sickler to Camp St. Malo
670-Use reported from concessionaire every month, but is usually low.
NR for Double JK in 1984- Livery sold and then repossessed, no use given for all summer.
Winding River Resort use for 1990 - 470 appears low. No use was reported for Aug. or Sept.
Wind River Ranch use for 1990-95 appears low. According to records, no use was reported for July, Aug. or Sept.
Sombrero at Grand Lake use for 1991 — 483 appears extremely low. According to NPS records no use was reported for July, Aug. or Sept.
Winding River Ranch use for 1991 appears low, 19 trips. According to NPS records no use was reported for two summer months.
Longs Peak Inn permit relinquished May 1992
Elkhorn Stables permit under suspension since 1991.
Winding River Ranch permit not renewed in 1993.

APPENDIX B.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE Rocky Mountain National Park
Estes Park. Colorado 80517

COMPENDIUM: 36 CFR 1.7(b)

DESIGNATIONS, CLOSURES, PERMIT REQUIREMENTS AND OTHER RESTRICTIONS IMPOSED UNDER THE DISCRETIONARY AUTHORITY OF THE SUPERINTENDENT-TITLE 36, CODE OF FEDERAL REGULATIONS. CHAPTER 1.

In accordance with the delegated authority contained within the regulations in Title 36. Code of Federal Regulations. Chapter I, Parts 1 through 7, as authorized by Title 16, United States Code, Sections 1 and 3, the following regulatory provisions are established for Rocky Mountain National Park.

Unless otherwise noted, these regulatory provisions apply in addition to the regulations contained in Title 36, Code of Federal Regulations, Chapter I.

NOTE: Please dispose of all copies issued prior to April 1993.

Prepared by: Division of Resource Protection and Visitor Management

RECOMMENDED: ____/sgd/
Joseph R. Evans, Chief Park Ranger

APPROVED: _____/sgd/
Homer L. Rouse, Superintendent

DATE: _____4/30/93

Section 2.16 Horses and Pack Animals

(a)(1) Llamas are designated as "pack animals" in addition to horses, burros, mules, and ponies.

(b)(1) Horses and pack animals may be used on park trails. Seasonal closures of portions of trails to horses and pack animals may be placed in effect at various locations throughout the park when necessary for environmental or safety reasons. Signs will be posted, livery permittees notified, and notices placed in newspapers upon initiation of such closures.

In order to prevent resource damage, as well as possible injuries to stock and riders/users, those portions of Flattop, Tonahutu Creek and North Inlet Trails which are above treeline are closed to all stock use annually from October 15 to July 31. This trail may be opened to stock use prior to August 1, depending on environmental conditions, as announced by the Superintendent.

(b)(2) The following trails are closed to the use of horses, llamas, burros, mules and ponies (exceptions are provided, as indicated, for use of llamas). Cross-country travel or off-trail use of horses and pack animals is prohibited parkwide.

North Fork
--Lost Lake Trail - beyond hitchrack.
--Stormy Peaks Pass to Mummy Pass (unconstructed).

Mummy Range
--Lawn Lake Trail - beyond hitchrack at east end of lake.
--Ypsilon Lake Trail - beyond hitchrack at south end of lake.

Ute Trail
-Upper Beaver Meadows to Milner Pass (open to llama use from Upper Beaver Meadows to Ute Meadows campsites)

Fern Lake Area
-Spruce Lake Trail (open to llama use from Fern Lake Trail to Spruce Lake campsites).

Bear Lake Area
-Bear Lake Nature Trail.
-Emerald Lake Trail - including spur trails to Dream Lake and Nymph Lake.
-Lake Haiyaha Trail and connection to The Loch-Mills Junction.
-Loch Vale Trail - beyond the hitchrack.
-Mills Lake Trail - beyond The Loch-Mills Junction.

Sprague Lake Area
--Boulder Brook Primitive Trail.
--Sprague Lake Nature Trail.

Longs Peak
--Chasm Lake - beyond hitchrack on Mills Moraine.
--Boulderfield - beyond hitchrack.

Wild Basin
-Bluebird Lake - beyond hitchrack.
-Lion Lakes - from Thunder Lake Trail.
-Lookout Mountain - from Meeker Park, Sandbeach, Lookout Mountain Trail Junction.

West District
--Specimen Mountain Trail.
--Poudre River Trail - Chapin Creek to Milner Pass.
--Chapin Creek primitive Trail (crosscountry route).
--Poudre River to Chapin Pass.
--Paradise Park.
--Haynach Lake Trail - beyond Tonahutu Creek Trail (open to llama use from Tonahutu Creek Trail to Haynach Lake campsites).
-East Inlet Trail - beyond west end of Lake Verna.
-Long Meadow-between Onahu Creek and Timber Creek Trails
-All trails above Grand Ditch except Thunder Pass Trail.
-Willow Creek drainage to Long Draw Reservoir (unconstructed).

(c)(1)(i) Horses and other stock are not permitted on park roads with the following exceptions:

-Fern Lake Road-between winter closure and Trailhead-to reach Fern Lake Trail.

-Upper Beaver Meadows Road-- to reach Beaver Mountain, Beaver Meadows, Moraine Park, and Deer Ridge Trails.

-Wild Basin Road—to access trails open to horses in the Wild Basin area.

-North Inlet Road to Summerland Park.

-Bowen-Baker Road from paved parking area to park boundary.

(c)(2)(i) Horses and other stock are permitted on Old Fall River Road only during the period of year when it is closed to motor vehicles and considered a trail.

(g)(1) Use of stock-drawn equipment is not permitted in the park.

(g)(2) Horses and other stock are not permitted in campgrounds or picnic areas.

(g)(3) The galloping of horses and other stock is not permitted within park boundaries.

(g)(4) Maximum number of animals permitted in one group ("string") is 20.

APPENDIX C

STATISTICAL DATA SHEET Horse Use of Trails within Rocky Mountain National Park

Dates: Name of Livery:

# HORSES/DAY																														
CODE																														

Remarks:

Signed:

Person completing form

ROMO-119 (Rev. 7/93)

Appendix D.

WEED LIST COLORADO WEED FREE FORAGE CERTIFICATION PROGRAM

THERE SHALL BE TWO CATEGORIES, CATEGORY I, AND CATEGORY II.

IN CATEGORY I, THE ALLOWABLE TOLERANCES SHALL BE ZERO (0) FROM THAT LIST. IN CATEGORY II, THOSE LISTED WEEDS NEED ONLY BE MENTIONED AS FOUND, WITH ADDITIONAL COMMENTS AS NEEDED.

CATEGORY I

FIELD BINDWEED	CONVULVULUS arvensis
HOARY CRESS	CARDARIA chalepensis
CANADA THISTLE	CIRCIUM arvense
LEAFY SPURGE	EUPHORBIA esula
RUSSIAN KNAPWEED	CENTAUREA repens
SPOTTED KNAPWEED	CENTAUREA masulosa
DIFFUSE KNAPWEED	CENTAUREA diffusa
YELLOW TOADFLAX	LINARIA vulgaris
DALMATION TOADFLAX	LINARIA dalmatica
MUSK THISTLE	CARDUUS mutans
PURPLE LOOSESTRIFE	LYTHRUM salicaria
TALL WHITETOP	LEPIDIUM latifolium
BULL THISTLE	CIRSIUM vulgare
SCOTCH THISTLE	ONOPORDUM acanthium

CATEGORY II

WOOLY MULLEIN	VERBASCUM phlomoides
ST. JOHNSWORT	HYPERICIM perforatum
HOUNDSTOUNGE	CYNOGLOSSUM officinale
HALOGETON	HOLOGETON glomeratus
PUNCTURE VINE	TIBULUS terrestris
SAND BUR	CENCHRUS longspinus
DOWNY BROME	BROMUS tectorum
FLIXWEED	DESCURAINIA sophia
TANSYMUSTARD	DESCURAINIA pinnata

APPENDIX E. TRAIL MAINTENANCE

STANDARDS

Standards: The Trail Plan recognizes that trails exhibit a wide range of uses, and therefore, should be constructed to certain standards of width, gradient, and surface material. Theoretically, any volume of trail use, whether hiking or horseback riding, is appropriate only on trails built to support that use confined to a well-defined, stable treadway. Standards A through D are constructed trails that are carefully aligned to minimize environmental damage and are designed to have only maintenance-controllable problems. Standards E and F are non-constructed trails, many of which developed through historic use and present serious maintenance problems.

Gradient: Trail gradient standards appear highly variable. The Forest Service recommends as ideal, grades of 1-7 percent (no steeper than a 7-foot rise in 100 linear feet); the Colorado Recreational Trails Committee suggests sustained grades of 8-10 percent, and 15 percent for short stretches. The Trail Plan specifies 12 percent as an average maximum grade; the Denver Service Center, 10 percent, especially for horse travel. It is basically agreed, however, that grades over 10 percent are difficult for non-motorized users to maintain and are subject to serious erosion problems requiring expensive maintenance efforts. Based on the above information, it is recommended that the maximum gradient for reconstructed trails be 10 percent, and that steps be constructed on sections of existing trails approaching 15 percent. Due to significant erosion and maintenance problems resulting from gradients above 15 percent, those constructed trails (Standards A through D) within the park exceeding this grade will receive a high priority for reconstruction. Zero grade is not recommended; as a general rule, some grade must be provided to adjust to drainage needs. The above standards should be implemented when trail upgrading projects are programmed.

Drainage: Perhaps the least defined standard is that of waterbar spacing. In general, the Denver Service Center recommends a minimum spacing of 75 feet; the Colorado Recreational Trails Committee, however, is quite specific on their recommendations for spacing. They consider both the gradient and the trail prism material. They also emphasize, as all trail manuals emphasize, the necessity to outslope or pitch out the water on a cross slope of 1:20. In some situations, grade dips may be the best way to drain a trail. They are generally built into the original construction on short sections of trail (5 to 6 feet) to remove water periodically along a consistent gradient. The low point in the dip is normally outsloped to divert the water from the trail.

One of the most common problems of park trails that contributes to accelerated erosion is the development of a berm on the outside edge. The berm may be an

accumulation of soil or rock that channels water along the trail rather than off the trail. These berms need to be removed in trail upgrading projects. In those situations where the trail is excessively trenched, log or rock checkdams will be required to minimize erosion until the trail can be relocated. In time the checks will become steps as they fill in, and additional checkdams will have to be constructed.

Although uncommon, the trail may have to be located in a poorly drained area. Every effort, however, should be made to locate the trail around the problem area rather than through it. If this alternative is not available, then a bog bridge or puncheon bridge must be constructed. Bog bridge construction normally uses material from parallel side ditches to build up the trail base, primarily in flat areas that are wet or that become wet. The depth of the ditch can be vary, contingent on field conditions and seepage severity. Another technique involves filling the problem area with rock and covering it with selected borrow, rather than excavating of parallel ditches. With this technique, an underdrain is laid within the gravel base and the moisture diverted to a watercourse. The most important considerations are getting the water level below the trail base and carrying the water under and away from the trail at frequent intervals. A filter fabric, placed between the fill and base, will improve soil moisture conditions to help stabilize the structure.

The puncheon technique uses sawn, treated lumber and native logs to elevate the trail tread above wet areas that are not feasible to drain. Corduroy construction is basically a primitive type of puncheon, using full logs. This technique, however, is usually considered a temporary solution.

Culverts are often used to drain wet spots or to divert small watercourses beneath the trail prism. Corrugated aluminum alloy culvert pipe will be the preferred type. Care should be taken in areas where forest litter may clog them, especially at sites with extensive deciduous litter. Culverts are also subject to freezing and remain frozen after the trail surface begins to thaw. Under these circumstances, an open trough type drainage composed of logs or rocks may be the best technique. There is no satisfactory method to determine the size of a culvert needed. The area of the watershed, slope steepness, ground cover, and soil types all influence the amount of drainage required.

Clearing: The Denver Service Center recommends clearing trail corridors, 6 feet wide and 10 feet high for horse use trails, and 4 feet wide and 7 feet high for hiker-only use. Clearing beyond these limits results in unnecessary trail widening. All stumps should be flush-stumped, and all pruning sprayed with a wound sealer such as TREEKOTE or TREEPAINT. Trees above 10-inch diameter breast height will not be cut unless rerouting the trail is impractical. Slash will be scattered with the cut end away from the trait; the number of saw cuts should be minimized by

carrying the entire tree (when practical) from the trail corridor rather than cutting it up into small pieces and discarding it adjacent to the trail. Limbing should be minimized. Appropriately sized logs should be peeled and retained for log steps, waterbars, or checks if required for the trail upgrading program within the vicinity of the project.

Hazard Tree Removal: Obvious hazard trees should be removed from the backcountry, especially in popular visitor use areas such as waterfalls, cascades, designated campsites, and stock hitchracks. It would be impractical and uneconomical to remove snags from the entire trail corridor. In some situations, however, where a butt-rotted tree is leaning toward the trail, removal would be acceptable since it would eventually have to be removed from the trail itself.

Trail Tread Excavation: When a trail section is realigned, it will be necessary to excavate a trail tread. The width will be determined by the trail standard identified in the 1982 Trail Plan. Duff and soil should be removed and saved for subsequent restoration of the cut-slope or for obliteration of the abandoned trail section. This material should not be discarded or scattered downslope.

It is recommended that all excavations be of the full bench type; backslopes will be graded as indicated for the various sideslope exposures. Rocks and small boulders should be removed and partially buried off the trail with any lichen mosaics exposed unless the slope exposure is too steep. The excavated materials can then be used for restoring the void created by removing the boulders from the trail prism. Large boulders which present an unsafe trail condition should be removed by explosives or by nonexplosive rock-splitting techniques. Shattered materials will be utilized in the trail prism or, if excessive, covered with duff and soil off the trail during the restoration phase of the project. Explosives will only be used by qualified personnel authorized to handle these hazardous materials.

In most instances, the material found in trail construction will be satisfactory for base material. However, if the material consists of topsoil or organic matter, then borrow material can be obtained by opening a borrow pit in the vicinity not visible from the trail. The pit should be kept small and shallow, with gently sloped sides. The duff and soil covering the borrow area should be removed and stored for subsequent restoration. Revegetation should be accomplished with a seed/fertilizer mixture obtained from the Resource Management Specialist.

Retaining Walls: Retaining walls, normally constructed of rock, are designed to stabilize the trail base on a sideslope. The thickness of the rock wall at the base should be at least one-half the height of the wall. A solid foundation on earth or rock is essential for a rigid, safe wall.

Some rock walls are used to support the cutslope above a trail, while others simply minimize erosion by protecting unvegetated cuts. In many situations, loose rocks are removed from the trail prism and placed on the downslope edge of the trail. A better practice would be to set them into the cutslope for erosion control.

A rock rubble wall should be used where possible to avoid an unnecessary large cutslope section or excessive blasting. When crossing a talus slope, it may also be necessary to construct a suitable dry rock wall on the uphill side to retain and stabilize slide material above the trail.

Trail Switchback: Switchback construction requires good initial trail centerline reconnaissance in relating its location and layout to the existing terrain. When switchbacks are necessary, the turns should be constructed as flat as possible. To minimize shortcutting, natural log and rock barriers should be selected during the trail design phase. If unavailable, then barriers should be constructed. Under no circumstances should a series of "stacked" switchbacks be constructed one above another. Shortcutting results in intolerable resource damage under these circumstances.

Fords: Fords are generally selected rather than being constructed. In fast-moving streams, the tread across a stream can be improved by pulling the larger rocks into a line across the stream parallel with the trail and below the downstream edge of the crossing. This technique allows sand and gravel to deposit above the barrier, thus providing a smooth, level tread. Fords should not be used when the water is swift or the water depth greater than three feet. In slow-moving streams, the larger rocks should be moved to improve the footing for horses. Construction of a ford consists of widening the trail base to a 36-inch minimum and leveling the stream bottom to make a relatively smooth and level crossing.

Bridges: A variety of techniques exist for bridge construction. Care must be exercised in the selection of a bridge site to ensure an adequate foundation for abutments and for stream piers when the bridge span requires them. Adequate high water and debris clearance under the bridge stringer should also be provided. On horse use bridges, a steel angle should be used on the lead exposed bridge plank at both ends to minimize damage from horseshoes.

Restoration/Rehabilitation: The Trail Plan identifies the various environmental and physical problems resulting from an inadequately designed trail system. Erosion, trampled vegetation, and multiple, braided tracks are scattered throughout the park but are most significant within the tundra ecosystem. All restoration techniques involve restoring the natural gradient, replacing eroded topsoil, seeding with native seed materials, fertilizing, and finally mulching. If borrow material is unavailable to fill in rutted areas, then numerous checkdams need to be constructed during the

first phase of restoration. Follow-up work will be required to assure a final natural setting.

Construction impacts can be mitigated by the techniques discussed under clearing and tread excavation. The ideal trail is one that appears to have been in place a long time, with natural conditions prevailing along the trail's edge. When maintenance work is accomplished above treeline, embedded rocks should not be pulled from the tundra ecosystem. Furthermore, if tundra sod has to be removed, it should be salvaged for use in eroded areas or be used to obliterate braided trails. The effects of axe cuts, freshly cut stumps, raw banks, or freshly broken rock should be minimized. Soil and humus are critical elements for restoration, and they should be used to mitigate the effects of management activities. The Resource Management Specialist will provide all of the other restoration materials.

Other considerations should include special interest plants and animals identified in the Natural Resources Management Plan. Protection of known populations and potential populations where proper habitat exists may be a primary resources management function. It will be the responsibility of the Resource Management Specialist to keep the trail crews informed accordingly. Of immediate concern is the influence of beaver on certain trail locations; the first priority is relocation of the trail rather than destroying or altering the dam. Special interest plants and animals should always be considered when planning the trail system.

Trail Markers and Signs: Trail signs are almost as important to visitors in reaching their destinations as is the trail itself. Maintenance will be responsible for maintaining the sign system and the annual inspection/inventory. All trail signs and markers should be checked regularly as part of the routine trail maintenance process. Posts should be sound and plumb, and the sign tight on the post and not splintered. The sign and post will be stained, with the surface and edges of the sign wiped to leave the letters a darker stain.

In addition to signs, rock cairns can be used as trail markers, especially on routes above timberline or through meadowlands. Within the tundra ecosystem, only loose rock should be used; within meadows, posts may be the best method to mark the route. All markers should be spaced so that at least one is visible at all times.

APPENDIX F.

SUMMARY OF COMMENTS ON DRAFT COMMERCIAL HORSE USE MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT

Rocky Mountain National Park, Colorado 80517

The park sincerely appreciates the time and effort every individual took to provide thoughts and suggestions concerning the management of commercial horse use in Rocky Mountain National Park. This summary was prepared from an analysis of all written comments received during the public comment period (August 3, 1993 -November 1, 1993) for the Draft Commercial Horse Use Management Plan and Environmental Assessment. The public was informed of the plan's alternatives through a newsletter, press release, and the draft plan,

A total of 179 letters were received for review and analysis. Of those, 43 letters included specific comments pertaining to plan issues and the environmental assessment. General support for continued horse use was expressed in 115 letters, many of which were generated by a belief that horse use was to be eliminated completely by the National Park Service. Fifteen letters were received concerning general horse use restrictions.

These numbers should be used only as a general indication of the diversity of input received. It should be noted that one letter may have contained many comments concerning several different issues. It must also be noted that the planning process is not a vote; one purpose of this plan and environmental assessment is to facilitate public involvement, to provide information, and to assist in the planning process. All pertinent laws, policies, research, and other factors enter into the decision-making process, in addition to public involvement.

The summary is organized into three major sections: I. Comments on Each Issue, II. Specific Comments on Other Portions of the Plan and EA, and III. General Comments. We have attempted to reflect the expressions of each individual's feelings and ideas, and maintain the intent as accurately as possible. Due to the overlapping nature of many comments, we often paraphrased or combined comments to best reflect the input. Although perhaps not fully reproduced in this summary, lengthy detailed critiques have been considered and have been responded to in either the summary or the text of this plan.

I. Comments on Each Issue

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
1. Objection to the preferred Alternative for Trail Maintenance: "Formalize the volunteer trail maintenance program for the liveries, and make it a contract/permit requirement.	1. The liveries will not be responsible for all trails, and the required fees will be adjusted according to each livery's business to allow a reasonable opportunity for profit. A percentage increase in concessioner fees will be used to develop a trust fund from which liveries will be able to draw upon to help manage heavy horse use trail sections. Refer to Section 3.2.1. discussion on Mechanism for Implementation of the preferred alternative.
2. I support the preferred alternative under 3.2.1 Trail Maintenance.	2. Thank you for your comment.
3. The requirement to rehabilitate and maintain park trails by the liveries as a concession permit condition: a) Does this mean that liveries must do the work or pay for the work to be done? b) Does it mean that the livery with 15 head of horses and 2 employees has the same responsibility as the livery with 80 head of horses and 15 employees?	3. a) Yes. There are two types of trail maintenance that the liveries will be required to conduct as a condition of their contract. Liveries will perform routine trail maintenance with their current staff, such as cleaning water bars and clearing trails. As mentioned above, a concessioner fee increase, which will vary for each livery, will be deposited into a trust fund to be administered by the livery operators. This money is to be used for rehabilitation work on heavy horse traffic trails, which may be conducted by livery personnel or a contractor. Work will be prioritized, defined and reviewed by the NPS. Please refer to Section 3.2.1. for additional information. b) No. The level of maintenance responsibility will be approximately proportionate to each livery's level of park use related income.

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
3. c) Does it mean that trails used by more than one livery will be assigned to one livery or the other to maintain? d) What about trails that only receive occasional horse use. If they are not maintained by a livery, can they still be used occasionally by that livery? e) What about supervision, liability and financial ability?	3. c) Trail assignment will be based on primary use. There may be some overlap on trails, such as in the Beaver Meadows and Glacier Basin areas. d) Yes. All trails that are open to commercial horse rides may be used. Park service crews will continue to conduct trail maintenance and rehabilitation work. e) The liveries will be responsible for daily supervision of work crews, but the park will provide the contractor or livery workers with project priorities, specifications, and program oversight. All parties involved, including the NPS, have a liability exposure as applicable under existing law, regulations and policies. Liveries may obtain additional liability insurance if they wish. Also, if the work is subcontracted, the contractor must, as standard practice, obtain liability insurance. Each livery's ability to make a profit will be considered when calculating the concessioner fee increase.
4. If a fee for trail maintenance is charged, liveries should pay this based on the number of trips or number of riders actually using the park trails, as opposed to a flat fee.	4. (Refer to all above responses). A concessioner fee will be assessed, which will be based upon each livery's financial analysis, and ability to make a profit.
5. a) Many "horse people" would be willing to put in time on trail maintenance, bringing their own equipment, if just given instruction, guidance, and some advance notice. b) Many volunteers, wanting to perform such a vital service, have been turned away or asked to do other tasks.	5. a) The NPS does use volunteers for trail maintenance. b) The park has spent on average approximately 2-4 percent of the base trail maintenance budget on supervision of volunteers over the past four years. The park encourages the use of volunteers, but they must be NPS directed and supervised. The park wishes to incorporate more volunteer participation as NPS prioritized project time allows.

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
6. The current condition of the horse trails in RMNP is largely due to neglect and lack of trail maintenance over the past 10 years.	6. Some form of trail crews have existed for well over 50 years at Rocky Mountain National Park . The yearly park base budget for trail maintenance has fluctuated, but has averaged approximately $150,000 yearly for the past four years. These monies are used to perform routine and cyclic type maintenance. In addition, significant restoration and rehabilitation work has been conducted within the past seven years on Longs Peak Trail and Flattop Mountain Trail, totaling approximately $211,700 of special project monies.
7. There is no provision in the plan for trail development, rerouting, new construction, expansion, etc., of horse trails.	7. Alternative *#2* under Section 3.2.8, Length of Rides, identifies construction of one-hour loop rides. This alternative was considered, but was not selected for resource protection purposes, because current trail funding is inadequate to properly maintain existing trails, and because a determination was made that the need for this service inside the park is not necessary.
8. The park should do trail maintenance, which requires knowledgeable direction. Liveries should pay 10 cents per hour per horse.	8. The park does conduct trail maintenance; however, the park does not have the authority to accept money from concessioners to conduct trail maintenance. Ten cents per hour per horse would amount to approximately $8,320, based upon an average of 41,600 trips at 2 hours each. This amount is not sufficient to perform the necessary trail maintenance in heavy horse traffic areas. Regardless, it would be very difficult to monitor rides per hour, if not impossible. Refer to Section 3.2.1.

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
9. The park service needs to direct more funding into trails maintenance rather than for new trails construction.	9. The park does not currently conduct trail construction for commercial horse use. Park base trail maintenance funds are not used for construction, but rather for routine and cyclic maintenance . Construction is conducted through special project monies.
10. The EA makes no commitment by the NPS to better maintain trails, and the NPS fails to acknowledge its role and responsibility in trail maintenance.	10. The NPS commitment to maintain trails to NPS standards is understood by the outlined goals, issues and alternatives. The park's commitment to trail maintenance is more explicitly stated in section 3.2.1. The role and responsibility of trail maintenance extends to commercial horse operations as well.
11. a) The Commercial Horse Use Plan fails to integrate Rocky Mountain National Park's Maintenance Management System as required in the 1916 NPS Organic Act. b) There is no discussion in the EA concerning the 1982 Trails Plan.	11. a) The horse plan discusses the park's 1991 ten year plan for trails, which is based on the maintenance management system as required by Public Law 98-540 of October 24, 1984 Sec.4(a). b) The horse plan refers to the 1982 Trails Plan, 1984 Trails Management Plan, and the 1991 Ten Year Plan for Trails. The 1982 Trails Plan was used as an information source, but cannot be fully implemented directly because it did not meet National Environmental Policy Act (NEPA) requirements.

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
12. a) Support of a daily usage fee for all horseback riders to help maintain and improve trails. b) We feel that we should not have our taxes and fees paying to maintain the trails from which the liveries are making money.	12. a) This plan does not apply to private horse use. The NPS does not have the authority to impose a user fee specifically for private horse users. Concessioner fees for commercial use are discussed above, and in Section 3.2.1. b) As discussed, the mechanism for concessioner trail maintenance will be conducted through a concessioner fee. The NPS has an obligation to maintain trails for all park users, including commercial operations and the general public, to the extent government appropriations allow.
13. a) The Environmental Assessment's proposal to require concessioners to pay a fee for trail maintenance places a disproportionate burden on commercial liveries. b) Further, the Environmental Assessment never addresses the ability of liveries to pay such a fee, or how the burden of paying for trail maintenance can be fairly and effectively distributed among all users of trails. The Environmental Assessment, without any basis, singles out commercial horse users to shoulder the financial burden of trail maintenance.	13. a) The National Park Service, under the 1965 Concession Policy Act, is required to provide a reasonable opportunity for a profit. Therefore, a disproportionate burden is not placed on the commercial liveries. b) The National Park Service does not imply that commercial horse users maintain trails throughout the entire park for all uses. Rather, the park believes that a fair and equitable balance is proposed to recover the costs of conducting this commercial activity in the park. (Refer to Section 3.2.1.).
14. There is no investigation of National Park Service's history in fulfilling, its obligation to repair and maintain trails.	14. The National Park Service has stated that it has an obligation, as does the commercial livery operator, to repair and maintain trails. Additionally, information was added in Section 3.2.1 to specifically identify this role.

ISSUE: 3.2.1. Trail Maintenance

Comment	NPS Response
15. The National Park Service should address trail maintenance in an attempt to support all uses at Rocky Mountain National Park.	15. This plan addresses commercial horse use under the 1965 Concessions Policy Act, and the need to address other trail uses is not required.
16. Focus should be given to shifting budget priorities in this regard instead of shifting the responsibility for trail maintenance onto the users, or, as in this case, one segment of the user population.	16. The NPS believes that NPS funds are allocated equitably with priorities oriented towards visitor services, visitor management and resources protection, and resources management. Refer to response #13a under Trails Maintenance.
17. The National Park Service should be, and is legally, responsible for repairing the trails to meet National Park Service standards.	17. Yes, indeed, the NPS is implementing its responsibility through commercial authorizations as required by the 1965 Concessions Policy Act. Refer to response # 6 under this issue.

ISSUE: 3.2.2. Noxious Weed Dispersal

Comment	NPS Response
1. Weed-free hay would be an unnecessary, expensive, difficult regulation to levy on liveries, and would not have any impact to the good within the park.	1. The plan explains in detail the need and benefits of a certified weed-free forage program, which is necessary to preserve the natural communities of the park. The program will not be implemented until there are a minimum of 5 certified grass growers in the State. The State of Colorado recognizes the need to manage weeds in forage, and has enacted the Weed Free Forage Crop Certification Act of 1993 (an optional weed-free crop certification program). The passage of this Act further demonstrates the need for a program in Rocky Mountain National Park.

ISSUE: 3.2.2. Noxious Weed Dispersal

Comment	NPS Response
2. If the certified hay program is to be instituted, the certified hay cannot be at too great a premium cost to the liveries for them to cooperate.	2. The park is concerned about the forage cost to liveries, and has changed the minimum number of certified growers from three to 5 grass growers to help assure competition in pricing.
3. Instead of requiring weed free hay be used by liveries, why not enlist volunteers, properly equipped with identification guides, to go out and pull up these weeds as they are found? Some of these people could be the Volunteers in the Parks, all the wranglers at the stables, and even the general public hiking the trails.	3. Park staff and volunteers have pulled and continue to pull noxious weed species yearly. The park uses a number of volunteer groups including, the Weekenders, Boy Scouts, Girl Scouts, as well as individuals. In 1992 and 1993, park staff spent 400 hours controlling noxious weeds. In 1993. volunteers spent approximately 300 hours on noxious weed control. There are some species, such as Canada thistle and Leafy spurge, that do not respond effectively to being pulled. Thus other management techniques must be used. such as chemical treatment, in which case, volunteers may not be used. It should be noted that some thistles are native, such as the Elk thistle, and should not be pulled. The park is also concerned about proper disposal of pulled weeds. The park encourages using volunteers, but only under the supervision or direction of a qualified NPS employee.

ISSUE: 3.2.2. Noxious Weed Dispersal

Comment	NPS Response
4. The park should not wait for the State certified weed-free hay program to become mandatory, but should institute its own requirement for the 1994 season.	4. The park will require the use of certified forage as mandatory when the rules for implementing the Weed Free Forage Crop Certification Act are adopted, and there are a minimum of 5 certified grass growers. To allow liveries an opportunity to purchase weed-free forage, the park will begin enforcing this requirement in 1995. The park does not have its own resources to certify all the fields used by the liveries, and thus will work in cooperation with the State Certification Program.
5. We agree that noxious weeds can be a problem, but we are concerned that very limited in scope studies are being used to blame horses for distributing the majority of weeds seen on trails.	5. The NPS believes the studies are sufficient to document that horses contribute to noxious weed dispersal. The park is not solely initiating the weed-free hay program. The State of Colorado recognizes this as a problem, as well as the U.S. Forest Service. Currently, two national forests in Colorado, the Rio Grande and San Juan, ban hay with weeds to enter the Forests. Horses are not the sole source of weed dispersal. However, this is one area the park can make an effort to reduce noxious weed impacts.
6. The Environmental Assessment itself has no data justifying how, if at all, horses contribute to a weed problem.	6. The National Park Service believes that sufficient data does indeed exist. (Refer to Section 2.6.4.)

ISSUE: 3.2.2. Noxious Weed Dispersal

Comment	NPS Response
7. The National Park Service fails to acknowledge, perhaps because it never investigated, the fact that most concession horses are restricted to corrals and are fed quality hay to ensure their good health. Since most horses are already fed weed-free hay, any problem created by horses feeding outside of the park would appear to be insignificant.	7. It is unclear why horses are restricted to corrals, given the purpose of commercial horse use is to conduct visitor tours. Additionally, if horses are fed quality hay which includes hay and forage free of noxious weeds, implementation of the preferred alternative should not incur undue hardship.
8. a) The Environmental Assessment greatly exaggerates both the problem associated with horses eating weed-. infested hay and the benefit in requiring concessionaires to do something they already do voluntarily. b) The National Park Service failed to weigh this marginal if any benefit against the unnecessary burden this regulation places on concessionaires.	8. a) If the concessionaires voluntarily have been utilizing weed-free hay, implementation of this preferred alternative should not cause undue hardship. b) The National Park Service did consider in its decision-making the advantages and disadvantages of the forage certification authorization requirement.
9. The National Park Service should concentrate its efforts in any regulation on the beneficial programs that address problems of weed dispersal that the Environmental Assessment acknowledges it occurs through natural and other means including indigenous wildlife population, wind, hikers, etc. It is irresponsible to promulgate any regulation that does not address the real problem. The status quo is not only a legitimate alternative, it is the most reasonable alternative.	9. The National Park Service is not proposing to promulgate any regulations for the use of certified weed-free forage within this plan. Rather, this is a contractual requirement necessary to obtain the authorization to conduct a commercial livery activity within Rocky Mountain National Park.

ISSUE: 3.2.3. Continental Divide Rides

Comment	NPS Response
1. The limitation of the Continental Divide rides to only one stable appears objectionable, unless there is some form of fair and competitive selection of such stable.	1. All concession contracts are advertised competitively. The selected alternative, a modification of the preferred alternative in the draft plan, is to prohibit commercial horse use by any livery on trails within the tundra. This includes the Continental Divide ride, but allows for rides to the Flattop Mountain hitchrack from the East side of the park. Access to trails from the Trail Ridge Road and Bear Lake Road corridors is limited by a preferential right use.
2. a) I believe guided trips have less impact on the tundra environment than unguided. b) Perhaps the trail would benefit by having guided groups of hikers on 4 days a week and guided groups of horses on 3 days a week, with no unguided groups allowed on the trail.	2. a) The use of horses, whether guided or unguided, off-trail or crosscountry is prohibited parkwide under 36 CFR 1.7 (b)(2). See Appendix B. b) The Flattop Trail system that traverses the Continental Divide is not a restricted use area. The park does not believe it necessary to close this trail for general public use (unguided groups), whether it be equestrian or hiker,
3. a) Allow commercial horse trips over the Continental Divide only when trails are free of snow. b) Limit trips to one per week, one day of the week.	3. a & b) Refer to Section **3.2.3.** The selected alternative, a modification of the preferred alternative in the draft plan, prohibits commercial horse use by any livery on trails within the tundra. Note that commercial rides will be allowed to the Flattop Mountain hitchrack from the East side of the park. All other trails that have hitchracks at timberline, such as Bluebird Lake, Lawn Lake, etc. will continue to allow commercial rides to those points, but not beyond.

ISSUE: 3.2.3. Continental Divide Rides

Comment	NPS Response
4. The plan is arbitrarily restricting horse use over the Continental Divide on weekends.	4. Sections 2.6.1 and 3.2.3 explain the ecological reasons for restricting commercial horse use over the Continental Divide. The park's selected alternative allows commercial rides only to the Flattop Mountain hitchrack from the East side of the park.
5. a) The number of days a ride goes over the Continental Divide should be limited**.** b) Non-weekend day limitation is inappropriate. Saturdays are one of the first days to sell out for horseback rides. Hiker/Horse user conflicts are reduced on weekends because more hikers use the park trails during the week; they are either going home or setting up camp on weekends.	5. a & b) The park has selected the alternative which prohibits commercial Continental Divide rides. Rides allowed to the Flattop hitchrack are not limited, nor are any other commercially authorized trails limited to the number of trips that may be taken. Rather, use is limited by HAOTs allowed in the park from each livery.
6. Horse rides above treeline, such as Continental Divide rides, which damage fragile tundra, should be prohibited because: a) Horse hooves cause severe damage and the time necessary to repair such damage is longest above treeline. b) Trail Ridge Road, Fall River Road, Cameron Pass, and Rollins Pass provide a Continental Divide experience with the opportunity to walk along the Divide and see the views. c) Riding over the divide is a long, jolting, tiring trip, particularly coming down hill. With very few exceptions, those who can endure the ride can also walk.	6. a, b, & c) Yes, the park recognizes this type of damage may and does occur on tundra trails used by horses. Thus, the park is not allowing the Continental Divide ride for commercial purposes in order to protect the resources, and because this is not a necessary and appropriate service for the average park visitor. General public use will still be allowed over the Continental Divide only when trails are free of snow.

ISSUE: 3.2.3. Continental Divide Rides

Comment	NPS Response
7. a) The Environmental Assessment offers no evidence that commercial horse users travel beyond established trails and damage tundra. b) Further, without citing supporting data or discussing any rationale, the Environmental Assessment makes an unsubstantiated proposal to eliminate weekend trips over the Continental Divide.	7. a) Section 2.6.1. identifies the sensitive nature of the tundra and alpine environment. The document indeed makes no inference that commercial horse users travel off established trails. b) Refer to response #4 and #5 under this issue.
8. The National Park Service ignores the fact that the liveries rely on the natural beauty of the park for their livelihood and thus abide by all rules related to trail use over the Continental Divide.	8. The National Park Service does not suggest that the previous rules and authorization requirements have not been abided by related to trail use over the Continental Divide, nor does the National Park Service suggest that the commercial operators do not appreciate the natural beauty and resources of the park. Additionally, the National Park Service does not believe that the heretofore infrequent trips over the Continental Divide have provided a significant portion of the revenues necessary for any concession to remain economically viable.
9. The Environmental Assessment provides no empirical evidence of abuses of current regulations or even suggest that current regulations inadequately protect the tundra.	9. This plan does not propose the promulgation of regulations, rather, commercial authorization requirements are proposed which meet resource protection requirements as mandated by law and policy.
10. Rather than arbitrarily restrict use, the National Park Service should determine the real cause of damage to the tundra and write regulations narrowly focused to effectively and appropriately deal with the problem.	10. The National Park Service believes that sufficient information does exist to demonstrate that the alpine and tundra resource is extremely sensitive, and that this must be balanced with the need to provide an appropriate commercial horse use opportunity.

ISSUE: 3.2.3. Continental Divide Rides

Comment	NPS Response
11. If poor trail maintenance and not the number of users damage the tundra, then the Environmental Assessment should better address trail maintenance before it arbitrarily restricts access by weekend park visitors to this important natural resource.	11. Refer to response #4 and #5 under this issue.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
1. a) Under 3.2.4 Interior Liveries, it will be a mistake to allow a new location for the Glacier Creek Livery. This would impact a new area, require roads, parking areas, utilities & trails. b) Dorms at both Moraine Park and Glacier Creek should be removed before any new contract is signed. c) The long term goal of the plan should be to remove both operations from the park. These facilities are incompatible with resource management objectives for the ecosystem in which they are located. The 1976 Master Plan called for a decision on this matter, and the long standing national park policy of "allowing commercial operations in a national park only if such goods and services are not reasonably available outside the park." should be enforced.	1. a) The park considers the net environmental benefit of moving the livery from a wetland site to an upland site as positive. This move will occur within three years of a new contract being issued. b) The selected alternative is to remove the 1990 dorm at Moraine Park and allow a maximum of four caretakers on site. This removal will occur within two years of the new contract being issued. c) The park has determined that a commercial livery operation within the park boundaries is a necessary and appropriate visitor service. Refer to Section 1.3.1. of the plan.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
2. Need more than two caretakers at the interior stables incase of fire or vandalism.	2. The park has modified the preferred alternative and believes that four people on location 24 hours a day are enough to provide first responder services, e.g., fire extinguisher use and first aid. Additional support for fire, law enforcement, emergency medical situations, and other emergencies are provided by the National Park Service, the Estes Park Volunteer Fire Department, and the Estes Park Medical Center. The need for four caretakers on site is for emergency situations only, not overall daily care of the stock, which should be provided by the wranglers and managers on a daily working basis.
3. Controlling the interior livery buildings, and moving the Glacier Creek Livery are necessary.	3. The park's selected alternative adequately addresses these concerns.
4. a) The housing facilities at the interior liveries are only used as dormitories. There are no social activities and no visitors from outside allowed. b) The removal of the housing will only lead to lower quality of service, more traffic on the park roads, and increased emission pollution.	4. a) The park understands that the housing facilities at the interior liveries are only used as dormitories. The issue is not social activities and outside visitors. The issue is that the Moraine Park dorms were allowed to be built only on the condition that they be temporary and removable. b) The park does not believe that removal of housing will lead to lower quality service. The traffic increase on park roads is negligible. The operator will have the option of moving the 1990 Moraine Park dorm outside the park or to the NPS housing area at Eagle Cliff.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
4. c) The 1976 Master Plan allows for exceptions to the housing for maintenance and protection when it involves personnel housed at strategic visitor-serving locations within the park. Both of the stable locations would qualify as strategic visitor-serving locations.	4. c) As stated in the 1976 Master Plan, the park's objective is to: "house all east side personnel either outside the park, within the headquarters area, or at the Fail River Entrance area; on the west side, personnel will be housed at the Grand Lake Entrance area and Shadow Mountain Village. Exceptions may include a minimum number of maintenance and protection personnel housed at strategic, visitor-serving locations within the park." The ultimate goal of the park is to relocate NPS housing (Rocky Mountain Housing Management Plan, 1993). The west side housing plan has begun to relocate government housing. Some planning is also underway for east side housing. The Fall River Development Concept Plan addresses relocating housing to near the park boundary. As stated above, the exceptions were to include park maintenance and resource protection and visitor management personnel, and the implication is not to include concession personnel, indeed, concessions facilities are specifically noted in the Master Plan: "To permit no further expansion of concession operations requiring constructed facilities inside the park. Existing operations to be eliminated when no longer needed within the park boundary."

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
4. d) "The decision was made in 1979, almost 25 years ago, at the renewing of the contract that these facilities were needed and necessary. In addition, the bunkhouse was authorized in 1990."	4. d) Neither dorm was built before the 1979 renewal of contract. The renewal of the contract in 1979 affirmed that the livery services provided were and still are needed, but renewal did not affirm that the dormitories are to be considered permanent structures. With the exception of any possessory interest, the NPS is not bound to expired, previously issued, contracts. Both dorms were approved only on the conditional basis of them being temporary and removable structures. The first dorm was built in 1984, and the second built in 1990. The NPS agreed to allow the first dorm to be in place a minimum of five years, and did not specifically agree to a maximum time period. The NPS determined the second dorm should be removed within 5-7 years, which is within the removal time frame required by this plan.
5. a) By having Glacier Creek stable remain at its present location, the public has access to park areas that are not primarily used by other liveries. b) The Glacier Creek Basin has been a historical horse use area.	5. a) A proposed relocation of Glacier Creek Livery may also provide the public with access to park areas that are not primarily used by other liveries. b) The park recognizes the historical use of the Glacier Basin area. Many different types of historic uses predate the park. The NPS is mandated to preserve districts, sites, buildings, structures and objects of National Registry significance (Historic Preservation Act, 1966, amended 1980), not use. As reported in this plan, and verified by the State Historic Preservation Office, there are no listed historicstructures at the Glacier Creek or Moraine Park Stables.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
6. Liveries inside the park must be phased out. In the interim, they must fully pay for the land and facilities occupied and for all damage they cause.	6. The park has determined that a commercial livery operation within the park boundaries is a necessary and appropriate visitor service. (Refer to Section 1.3.1. of the plan.) The concessioner is responsible for all costs associated with the use of supporting the operation. The concessioner pays a building use fee for government owned facilities. Concessioners do not pay for the land because it is the government's contribution towards providing this visitor service. A reasonable return to the government for maintenance and use of park lands by concessioners will be applied in the development of future contracts.
7. a) It is our understanding that the structures at the Moraine Park Livery are all less that 50 years old. b) A search of the Colorado inventory of Cultural Resources indicates that we have no information on the Glacier Creek Livery, which includes buildings more than fifty years of age.	7. a) Yes, all facilities at Moraine Park Livery are less than 50 years old. b) The cabin type structure at Glacier Creek Livery is more than 50 years old, but is not listed on the national register of historic sites. The other structures are less than 50 years old.
8. a) Assessment of the aquatic ecosystems adjacent to Glacier Creek Stables indicates that the livery does not cause measurable or observable degradation of Glacier Creek or wetlands.	8. Please refer to reports by Aquatic Wetlands Consultants (AWC), the National Park Service (NPS), and Dr. David Cooper as discussed in Section 2.7.6. a) The assessment by Dr. Cooper of the aquatic resources at Glacier Creek Stables is contrary to that of AWC. "Glacier Creek is in a small ravine approximately 30 feet deep and strong springs flow from the east side of this ravine. Thus, a wetland ecosystem completely connected to Glacier Creek occurs on this slope," (Cooper, 1993).

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
8. a) Continued. b) Glacier Creek water quality investigations show no measurable water quality degradation directly attributable to the livery. c) Observed iron leaching and algae are natural events and do not appear to negatively impact Glacier Creek. d) The suggestion that the livery was constructed in a wetland is not supported by field observations, although a small portion of the corral does cross a wetland drainage.	8. a) Continued. Indeed the "site of Glacier Creek Livery once contained very valuable wetlands. The fact that all wetlands between Glacier Creek and Boulder Brook are completely connected indicates that direct discharge of horse wastes into the waters of Glacier Creek has been occurring for many years" (Cooper, 1993). b) It has been estimated that over 20,000 gallons of urine is produced by the 80 horses at Glacier Creek Stables during the 13 week operating season, and that this fluid must flow overland and/or percolate into the soils to become part of the water table. Ammonia is most likely arriving in the groundwater and in Glacier Creek relatively unmodified. The NPS has found ammonia levels exceeding state standards in Springs that discharge into Glacier Creek. These high levels indicate that significant amounts of urine are percolating into the corral soils and being incorporated into the groundwater. c) The NPS recognizes that much of the iron found at the seeps may be natural. d) Field observations conducted by AWC on behalf of Hi-Country Stables did not follow standard investigative practices for disturbed and potential fill sites. AWC's soil investigations were 12 inches deep, and concluded that the soils were of A and B horizons.

ISSUE: 3.2.4. interior Liveries

Comment	NPS Response
8. d) Continued. e) Glacier Creek Stables has implemented "best management practices" to protect adjacent aquatic resources. The horse corral has been significantly reduced in size from its original configuration, relocated out of wetlands and Glacier Creek. f) Potential impacts of surface water runoff and groundwater infiltration following a storm event are easily corrected. Proposed corrective measures include isolating corral runoff by creating a small containment berm around the corral, lining the corral with clay soils to prevent groundwater infiltration, and directing corral runoff into a constructed wetland filter.	8. d) Continued. Soil investigations conducted by Dr. David Cooper, on behalf of the NPS, reveal that the 12 inches of soil AWC investigated were angular fill, and thus should have been investigated further. Dr. Cooper concluded, based upon on-site analysis and review of historic conditions, that Boulder Brook wetlands, and the wetlands under both Glacier Creek corrals are completely connected to Glacier Creek. e) The NPS believes that the existing "Best Management Practices" (BMPs) are not adequate to prevent significant adverse impacts to the protection of wetlands, and to protect the State Class 2 High Quality water designation for Glacier Creek. The vegetation buffer around the stables does not prevent stormwater and other runoff from entering the stream. National Parks may be held, and are usually managed, to a higher standard than the minimum State standards for BMPs. f) A small containment berm around the corral may help in the short term during dry periods, but in the long term, during flood event periods, the berm would not be adequate.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
8. f) Continued. g) Given that Glacier Creek Stables is not causing measurable or observable degradation to Glacier Creek and adjacent wetlands, and the fact that aii identified impacts from the livery are minor and mitigatable, it is recommended that the Glacier Creek livery be allowed to remain at the present location.	8. Continued. Lining the corral with bentonite clay would not be practicable for horse operations. This type of clay becomes very slippery and almost impossible to maneuver in when wet. The creation of a constructed wetland has not been proven for high elevation areas, and in particular cold regions where the ammonia loading rate would be phenomenal. The dilution factor needed for urine must also be considered. The proposed size of the wetland would not be adequate to handle the load rate of urine and ammonia. g) The corrals are located in wetlands, and these sensitive resources are being adversely impacted. !t is possible that fill activities performed in the past were in violation of Section 404 of the Clean Water Act if filling, which occurred minimally in 1983 and 1987, was unpermitted. The NPS firmly believes that the Glacier Creek Livery must be relocated to prevent any further resource degradation and to restore the wetlands, to abide by Wetland Executive Orders, and NPS policies and guidelines.
9. Please consider reducing the number of commercial liveries in Rocky Mountain National Park to zero. Consider allowing only private horse use by permit only. —Horses damage trails, etc. a lot more than people.	9. Alternative number six in Section 3.2.4 has given consideration to reducing the number of interior commercial liveries to zero. Additionally, Section 3.2.6 considered, but rejected an alternative to eliminate commercial horse use in the park.

ISSUE: 3.2.4. Interior Liveries

Comment	NPS Response
10. I still have serious reservations about moving the entire Glacier Creek Livery operation and disturbing yet another natural area.	10. The NPS believes that the total benefits of relocating Glacier Creek corral from its present location to an upland site outweighs the disadvantages of continued operations in a federal wetlands.
11. The very nature of the horse rental business requires that employees are housed at the stable.	11. The National Park Service believes that a minimal number of employees is necessary as discussed in Section 3.2.4. The Service disagrees that there is compelling evidence that requires all employees be housed at the stable.
12. The 1976 Master Plan states that the liveries will operate at their present level. The decision to retain the liveries at the 1979 renewal would certainly indicate that the "present level" would include the present facilities at the present locations.	12. The Master Plan specifically indicates the level of horse use, and this in no way implies all facilities at the present locations. The NPS is obligated to evaluate the impact of facilities at the current locations for its adequacy to provide visitor services, and for its impact on park resources.

ISSUE: 3.2.5. Horse and Hiker Conflicts

Comment	NPS Response
1. There is documented proof that horse/hiker conflicts have been at a minimum for the past 10 years and should not be considered a major issue.	1. There is sufficient information to indicate that the horse/hiker conflict is a concern and an issue the park must address.
2. a) With proper supervision, commercial rides will use trails, not trample the meadows and tundra. b) Horses are allowed on certain trails, while hikers have unlimited access to park trails.	2. a) Thank you for your comment. b) Approximately 260 miles of park trails are open to private or commercial stock use (refer to park horse brochure and Section 2.6.2)
3. a) If a survey were taken of visitors entering the park, it would be obvious that most visitors would prefer that horses should be allowed only on trails with low hiker use. b) Only 1.38% of the annual park visitation represents commercial horse users. This appears not to be a situation where the majority rules.	3. a) A survey with this particular question has not been conducted. Two surveys conducted in 1977 by Dr. Trahan indicated that a majority of hikers disapprove of horse use on park trails. This varies between each subdistrict (refer to Section 2.6.5). b) The park believes it is appropriate to provide for a variety of recreational uses, including horse use, that are compatible with preservation of the park resources.
4. Certain trails which have been designated as "Hiker Only" have my approval simply because I agree that horse use in these areas would really add to the problem. The Bear Lake area receives so much foot traffic that trying to ride a horse on these trails would be ludicrous.	4. Approximately 20% of the park trails have been designated as hiker only to reduce the hiker/horse conflicts in high use areas, such as the Bear Lake region, and to help protect the fragile tundra environment.

ISSUE: 3.2.5. Horse and Hiker Conflicts

Comment	NPS Response
5. Separating hiking and horse trails should become a high priority for both the National Park Service and U.S. Forest Service.	5. Separate trails for hikers and equestrians is appropriate in certain areas, but impractical in others. Additional trails would increase the amount of resource damage to the environment, may affect the visual aesthetics in some locations, and would increase maintenance costs. The park is relatively small. Thus, over 300 miles of trails provides sufficient opportunities for all recreationists.
6. Horse use must be managed on a "low impact" and "leave no trace basis." The days are past of few visitors, few impacts and few conflicts. Hikers, campers and skiers have, and are drastically changing their use of the backcountry, and they recognize there may be more restrictions. Horse users, particularly those with an economic interest, must recognize that major changes are a necessity in order to preserve the basic ecosystems of the park and its attractiveness to visitors.	6. Operating plans for each livery outline requirements such as: they must stay on designated horse use trails, no grazing is allowed, overnight use must be in designated horse sites, weed-free forage is required as part of this plan, limits on the number of horses each livery may have in the park at any one time, limits on the of string, etc.
7. a) To sign a trait as "heavy horse traffic" will force hikers out of certain areas in addition to the areas closed to hiking, or will send a message that park resources and hiker experience are less important than commercial operations. b) We recommend eliminating horses from the park or having completely separate trails.	7. a) The intent of signing trails as "heavy horse traffic" is to help the park visitor make a more informed decision on where to hike. b) The park believes that horse use is an appropriate recreational activity, and when managed properly, may have a minimum impact on park resources. Separation of horse trails from hiker trails currently exists in certain park locations, such as Bear Lake. Creating more trails for horses would increase the amount of resource damage to the environment, may affect the visual aesthetics in some locations, and would increase maintenance costs.

ISSUE: 3.2.5. Horse and Hiker Conflicts

Comment	NPS Response
8. Steadily increase the number of trails where horses are not allowed to alleviate the major problem of horse manure on hiking trails.	8. The park believes that commercial horse use is a necessary and appropriate service to be provided to park visitors. The park has added an alternative under Section 3.2.5. of the plan to address the horse manure issue. To help reduce the horse/hiker conflict, the park will require liveries to completely remove manure from park trails within 1/4 mile of the barn twice a week. The park also will require liveries to widely disperse manure off certain sections of assigned trails that receive heavy horse traffic. These trail assignments will be defined in operating plans. This removal should be performed once a week. This program will be required after certified weed-free forage is used by the liveries, and will be considered as routine maintenance.
9. a) The park should seriously consider controlling horse manure on trails, such as requiring horses to use "feces bags," or requiring the liveries to clean the trails once a week, or even on a daily basis. b) Horse manure on park trails clearly detracts from hiker enjoyment. Hikers, campers, picnickers, and backpackers, all are expected to clean up after themselves. However, horse riders are permitted to pollute the park by leaving enormous amounts of raw sewage on the trails. River runners, private and commercial, must carry out everything, including their own human waste.	9. a) It is inappropriate to require feces bags to be used on trail riding horses. Feces bags are only appropriate for harness horses. b) Refer to response #8 under this issue.

ISSUE: 3.2.5. Horse and Hiker Conflicts

Comment	NPS Response
10. a) Under 3.2.5 Horse and Hiker Conflicts, the park should include an alternative to reduce the authorized levels of use where there is very heavy horse use.	10. a) The issue of reducing the authorized levels of horses is addressed in section 3.2.6 Spatial Distribution of Commercial Horse Use, alternative #2.
b) This should include restrictions on the Glacier Creek, Moraine Park, National Park Village & YMCA stables.	b) The YMCA was not included in the above alternative because their use has not increased from 1976 levels.
11. The stink of horse manure and urine does not add to a wilderness experience. Horses should be tied up away from trails, rest stops, lakes, or camping areas, and be required to water at least 100 feet away from lakes.	11. Most hitch racks are 100 feet away from lakes. The park's objective for those that are not, such as Lawn Lake, is to relocate the hitchracks to a more environmentally appropriate area. Stock is required to tie up at least 100 feet from lakes or streams.
12. The Liverymen would like the National Park Service to recognize that the Environmental Assessment's discussion concerning horse and hiker conflicts ignores the Liverymen's long-established-and effective education program addressing horse and hiker conflicts.	12. The National Park Service recognizes and indeed requires the livery operators to conduct interpretive and educational programs.
13. a) The Environmental Assessment's discussion of horse and hiker conflicts is primarily based on studies conducted in the 1970's or at other national parks. The Liverymen take exception to many of the Environmental Assessment's conclusions based on these studies.	13. a) The National Park Service has used all information available to develop the alternatives and to make the decisions on commercial horse use, and believes that the alternatives and decisions are based upon reasonably sound scientific and resource information.
b) Before implementing its own education program, the Liverymen encourage the National Park Service to make every attempt to understand the conflicts and severity of those conflicts that exist today in Rocky Mountain National Park.	b) Existing studies and the public involvement process for this plan have been used to further understand the problems associated with, and alternative solutions for, horse/hiker conflicts.

ISSUE: 3.2.6. Spatial Distribution of Commercial Horse Use

Comment	NPS Response
1. a) The totals, averages, and numbers as calculated by the NPS misrepresent the demand for horse use commercially. b) As an operator of an "outside the park boundaries livery," we could not handle and meet the demand for visitors wishing to ride within RMNP. Our current permit number is not adequate at certain times. Projected future use could mean the need for a higher number of permitted horses to use RMNP.	1. a) The purpose of this plan is to determine what are the necessary and appropriate visitor services, related to commercial horse use, that will be provided. !t is not the goal of the plan to meet the entire demand for commercial horse use. b) The park cannot base management decisions solely on unlimited increasing demand for commercial activities. There are many park facilities that cannot meet peak visitor use demands. Horse use must be balanced with other park activities, and managed for the benefit and enjoyment of al! visitors and for the preservation of park resources.
2. Our livery agrees that the preferred alternative for Spatial Distribution of Commercial Horse Use should remain the status quo: 626 Horses at one time to enter the park.	2. Thank you for your comment.
3. a) Section 3.2.6 Spatial Distribution of Commercial Horse Use should support the 1976 Master Plan, "No increase in horse use by concession or permit should be allowed." b) This should include Alternative #2 (until the interior liveries are removed from the park) and a new alternative to "Limit the number of trips each livery takes per season to its 1976 level or their last 3 year average, whichever is least".	3. a) The National Park Service believes the preferred alternative under Section 3.2.6. supports the Master Plan intent to not allow an increase in horse use by concessioners. The average total number of trips in the park has not increased dramatically since 1976, but has stayed relatively the same at approximately 41,600 trips per year. b) The total number of HAOT are used to measure horse use instead of individual trips because of the administrative and management complexities of monitoring daily trips for each livery. Please refer to impacts on the Spatial Distribution alternatives. Section 3.2.6.

ISSUE: 3.2.6. Spatial Distribution of Commercial Horse Use

Comment	NPS Response
3. c) How can the "status quo" be the preferred alternative with the ever increasing uses of the park, steadily increasing impacts of concession horse use, and horse/hiker conflicts?	3. c) Horse use is but one of many increasing visitor uses in the park. The park's objective is to balance the management of all visitor uses. The park will utilize the trail maintenance program, weed-free forage program, prohibition of commercial use on trails over the Continental Divide, educational programs, and the removal of manure program to help reduce resource impacts and horse/hiker conflicts.
4. a) Mechanisms for implementing preferred alternative 1 is a "cop out." How can the park justify keeping impacts to a minimum by allowing intense use of the already over used Glacier Creek and Moraine Park areas. b) Areas in the very heart of the park can't be sacrificed further for private commercial gain.	4. a) The Glacier Creek livery will be relocated to an appropriate location to be determined by a study. Also refer to response 3c) above. b) Commercial liveries exist in these areas of the park to provide a necessary and appropriate visitor service during the peak summer visitation period. Portions of the private commercial gain will be dedicated to trail maintenance in heavy horse traffic areas.
5. a) A lower overall limit on the number of horses in the park at one time should be imposed.	5. a) This alternative was considered, but was not chosen because the current number of authorized HAOT meets the intent of the Master Plan to maintain existing levels of horse use.

ISSUE: 3.2.6. Spatial Distribution of Commercial Horse Use

Comment	NPS Response
5. b) The park should certainly remain open to both horse and hiker use. However, the impact of horses (noise, droppings, prints, trail widening, etc.) is much greater than hikers. As the number of hikers increase, the number of horses allowed in the park should decrease, especially in heavily used areas.	5. b) The park's intent is not to reduce or increase horse use, but to keep it at current levels, and to reduce resource impacts and hiker/horse conflicts through the mitigating measures identified in this plan.
6. Alternative #5 is preferred so as to have the least amount of impact on the existing liveries. Increases in horse use and horse numbers has occurred in the most impacted areas of the park. It would seem that spatial re-distribution of some of the 77% of all rides in the park might help to reduce some of the problems and provide a better quality experience for everyone. This can be done by increasing HAOT to outlying stables to absorb some of the pressure, or allow new or additional permits in less used areas of the park, which would redistribute the pressure.	6. Redistribution of horse use from heavy impacted areas to those areas not heavily impacted may not solve problems. Through this scenario new problems may be created where they clearly do not currently exist. Refer to Section 3.2.6. Spatial Distribution Impacts discussion for alternative #5. Some limited redistribution may occur if the opportunity arises through an operator's material breach of contract. Please refer to Section 1.3.2.
7. One item not fully discussed is dispersing private horse use through construction of additional trailheads and parking areas. i.e., McGraw Ranch and Lily Lake.	7. Private horse use is outside the scope of this plan. However planning projects are underway, e.g., the Lily Lake Development Concept Plan, that are considering additional horse trailer parking areas.

ISSUE: 3.2.6. Spatial Distribution of Commercial Horse Use

Comment	NPS Response
8. The number of permits should reflect the increased demand for horse rides. Those permits should be determined not based on an old study but on an overall plan to integrate all uses at Rocky Mountain National Park.	8. It is not the purpose of, nor the intent of, the National Park Service to provide for the unlimited demand for commercial horse use. Rather, the National Park Service believes it has developed preferred alternatives which appropriately balance the various uses. All uses and resources were considered in the master planning process for the park. The Commercial Horse Use Management Plan tiers off the Master Plan, and as such, is an implementation plan specifically addressing commercial horse use.
9. a) Rather than set an arbitrary permit level and work backward to determine where the pre-ordained number will be distributed, the National Park Service should start with each trail and determine the level of use it can sustain, taking into account proper trail maintenance programs by the National Park Service, and add those permits to determine the overall number. The National Park Service is working from the top down rather than answering the real questions of where and how much horse use can be permitted to meet 1993 demands for a quality horse riding experience.	9. a) The National Park Service believes that the levels set forth in the preferred alternative are necessary and appropriate to provide a service to the park visitor and to protect park resources.
b) In addition, the Environmental Assessment never addresses what kind of permits should be issued.	b) For concession operations over $100,000 of gross receipts, authorization for commercial activities is provided for by a permit. For those concession operations under $100,000 gross receipts authorization is provided for by a limited permit.
10. The Liverymen support the status quo to permit the current levels of HAOT. However, the plan should explicitly recognize that this is not a cap. The National Park Service should keep the option of increasing HAOTs if future demand requires more use.	10. The plan does in fact set a ceiling on the number of HAOT to be authorized and believes this is necessary to meet the objectives **of** the 1976 Master Plan. Also, refer to Section 1.3.2. and Section 3.2.6. in the plan.

ISSUE: 3.2.7. Winter Use/Extended Seasonal Use

Comment	NPS Response
1. Strongly object to no trail riding in the park in the winter. Elkhorn operates year round and may require limited portions of its historic trail system to operate.	1. The park has made a determination that the service of commercial horse riding in the park in the winter is not necessary or appropriate. There are other opportunities for commercial horseback riding outside the park in the winter, on lower elevation trails that meet this visitor use. Trail riding in the winter may cause resource damage due to snowy and wet trails, and may be unsafe, especially where snow pack conditions are very unpredictable.
2. I support the preferred alternative under 3.2.7. Winter Use/Extended Seasonal Usage.	2. Thank you for your comment.
3. Rather than set seasonal operating limits on commercial horse use, the liveries would like to have the park keep the season open, and close specific trails when there is snow or it is too wet.	3. The NPS's responsibility in concessions management includes defining the season and hours of operation based upon whether the service is necessary and appropriate. The issue is not closure of trails, but authorization for commercial use.
4. Request to extend our use period beyond May-Sep. We are open all year, and would take a limited number of guests into the park Oct., Nov., and in the early Spring.	4. Refer to response *#1.* The NPS has redefined the commercial horse use operating period to be from the second Saturday of May through the third Sunday of October. This is a maximum use period. Minimum operating periods will be negotiated with individual liveries.
5. Horse use is not a use that would be conducted by the average visitor in winter. Cross-country skiing is a much better activity for winter visitors.	5. Thank you for your comment.

ISSUE: 3.2.8. Length of Rides

Comment	NFS Response
1. I support the preferred alternative under 3.2.8 Length of Rides. We strongly agree with the decision to disallow one-hour rides. Two hours should be the minimum.	1. Thank you for your comment.
2. Is the length of ride computed by the time spent in the park, or the entire ride from beginning to end?	2. The length of ride is computed as the entire ride from beginning to end.
3. The term "day use" is not fairly calculated for guests using the park for a two-hour ride.	3. Day use refers to any type of visitor use in the park that does not require an overnight backcountry permit, and those visitors who do not stay overnight in developed campgrounds.
4. We need one-hour rides for people who have never ridden, or cannot tolerate two hours on a horse. We also need one-hour rides from interior liveries to get people deeper into the wilderness. A one-hour ride from outside the park cannot give the same nature experience.	4. Many exterior liveries already offer one-hour rides adjacent to the park on U.S. Forest Service or private lands that are very similar to park lands. Construction of more trails for one-hour rides would impact more resources, require more trail maintenance, and would increase the number of possible rides in a day, thus potentially increasing the hiker/horse conflicts on these trails. Operational costs to the livery would Sikely increase as well.

ISSUE: 3.2.9. String Size

Comment	NPS Response
1. a) Limitation of string size still does not address the problem in the Beaver Meadows area, where 20 horses every 15 minutes from each of 3 liveries is a potential of 240 horses per hour using trails in this area. This is a very heavy burden on those trails. b) Perhaps some coordination of which stables use which trails when, or implementation of alternative *#2* for stables in the high impact area (strings of 12 every 30 minutes x 3), which would limit potential horses on those trails to **72** per hour.	1, a & b) To change the maximum string size would not decrease the number of horses at one time allowed in the park, but would increase the number of strings on the trails. Decreasing the maximum string size and increasing the separation time between strings may increase the operation costs to the liveries, and in some instances, the opportunity for profit may be greatly reduced.
2. a) Section 3.2.9 String Size should be reduced from 20 to 12. The reduced string size will provide better control of riders for safety and resource protection, better interpretation by guides, and increased enjoyment for riders and less conflict with hikers. b) Smaller strings are more important than time between rides. Or reduce to 10 separated by one hour.	2. a) A reduced maximum string size would provide better control of riders for safety and resource protection only if two wranglers were used on every string. Using two wranglers on every string of 12 would increase operation costs. If only one wrangler were used to keep operation costs down, the enhanced services to the visitor and the protection of resources would not be provided. It is not clear that a smaller string size would result in increased visitor enjoyment and less conflict because instead of the hiker stepping off the trail for one string of 20, the hiker would have to step off twice for two strings of 12. b) The park believes that a separation time of 15 minutes between strings is appropriate to provide visitor enjoyment, minimize horse/hiker conflicts, and provide the concessioner with an opportunity for profit.

Issue: 3.2.9. String Size

Comment	NPS Response
3. a) The number of horses allowed in a group should be reduced to no more than four or six horses per group with spacing of at least two hours.	3. a) These requirements would not provide a sufficient level of visitor service. The economic viability of the concession operation would be adversely affected.
b) Waiting at the side of a trail for Song strings of horses to pass detracts significantly from the experience of solitude the park should provide. If large groups of horses are allowed, it becomes impossible for anyone, including the horse riders, to enjoy the wilderness experience.	b) The park must balance and manage all appropriate park uses so that park resources are preserved for the enjoyment of future generations. If properly managed according to this plan, the park believes horses and hikers can share trails with a minimum of Conflicts.

II. Specific Comments on Other Portions of the Plan and EA

Comment	NPS Response
1. Goal #6 should be to maintain trails to acceptable standards for safety and enjoyment, not merely to increase the level of maintenance.	1. Trail maintenance is performed for the purposes of visitor enjoyment and safety, and to protect park resources. Goal 6 has been modified, and this response has been incorporated to Section 2.6.2. of the plan.
2. Section 3.1.1 Special Conditions for Commercial Stock Operations should also include:	2. a) All concession authorizations are only permitted for guided, saddle, and stock tours. Unguided horse rental for individual riders is not authorized.
a) all concessioner horse trips in the park must be guided and no stock may be rented for use by individual riders.	b) Single file riding is not required. As a practical matter, horses routinely stay in single file. As outlined in all park concession permits, "The concessioner shall conduct trail rides in such manner as to minimize impacts on park resources. Horses will not be permitted to leave established trails, graze or otherwise damage terrain adjacent to trails."
b) All guides and riders must stay in a single file line on designated park trails.	

I!. Specific Comments on Other Portions of the Plan and EA

Comment	NPS Response
3. Section 2.7.8; the NPS has a responsibility for the safety of public users of park concession services and facilities. Contracts should not authorize access to the park over routes that do not meet safety standards of construction and maintenance.	3. Livery concession contracts or permits do not authorize access to the park, they authorize use of park trails. Refer to Section 2.7.8. (External Park Trail Damage) in the plan.
4. Section 3.1.1 #5; Conducting commercial activities without permits must be prohibited and enforced.	4. Yes, indeed, "Conducting any business operations in park areas, except in accordance with the provisions of a permit, contract, or other written agreement with the United States, is prohibited." (36 CFR, Part 5.3). This is enforced.
5. Section 3.1.1 should include: Should there be serious or repeated violations of permits, contracts, or operating plans, the authorization to operate in the park may be revoked.	5. The annual evaluation process of concessioner operations and permit compliance considers any violations of authorization requirements, which if found, may result in the revocation of an authorization as set forth under the Concessions Policy Act of 1965.
6. Section 3.1.3; Enforcement must be stated stronger and followed through, or this plan can't work.	6. The NPS concurs, and enforcement is and will be conducted consistent with NPS laws and policies.
7. Section 3.1.5; the park must check numbers & operators closer.	7. Same as response #6.
8. Section 1.3.2 Commercial Services Authorized, "..the park will issue no additional permits..." What if a livery owner sells their business, and the new owner does not want horses on their property, horses could be eliminated in this manner. Could this statement be modified to something like, "new permits will only be issued in areas of the park not adequately served by existing liveries, and only to 1976 or current usage levels." or some such less restrictive rule?	8. Please refer to Section 1.3.2. "...the inability of an operator to provide livery service from the authorized location would constitute a material breach of contract resulting in termination. The NPS may seek a new operator to provide services from the authorized location through competitive bid. If no satisfactory bids are received to conduct services from the authorized location, new locations may be considered"

II. Specific Comments on Other **Portions of** the Plan and EA

Comment	NPS Response
9. The Environmental Assessment's discussion of impacts from horse use does not focus sufficiently on circumstances at Rocky Mountain National Park to provide great assistance in forming a constructive plan.	9. The NPS has used all the information available to provide guidance in the alternative formulation and decision-making for this plan.
10. Before the National Park Service implements its proposal to publish an equestrian site bulletin or provide information to visitors, the Liverymen would welcome the opportunity to discuss with the National Park Service their experiences in educating riders.	10. The NPS appreciates input from any source on publications designed to educate park visitors. Equestrian visitors were contacted to review the equestrian site bulletin prior to its publication.
11. The Environmental Assessment, without further consideration, automatically adopts the 1976 Master Plan objective that there be no increase in horse use. The Environmental Assessment never considers the level of current demand for horse use which has increased since 1976 and how that increased demand should be weighed against increased demand for other trail uses.	11. It is not the purpose of, nor the intent of, the park to provide for the unlimited demand for commercial horse use. Rather, the park believes it has selected alternatives which appropriately balance the various uses.
12. The statements in the preliminary draft that indicate that High Country Stables is in violation of the 1976 Master Plan are very misleading.	12. The NPS does not intend to imply that High Country Stables nor its owner or operators are in violation. Rather, Rocky Mountain National Park is in violation of meeting the intent of the 1976 Master Plan. The NPS authorizes all the conditions under which High Country Stables operates.

II. Specific Comments on Other Portions of the Plan and EA

Comments	NPS Response
13. Statements to the effect that High Country does not have a contract are untrue. There is a contract in effect and extended by both High Country and the National Park Service through a letter **of** agreement.	13. The High Country Stables contract expired by limitation of time on December 31. 1990, and since then has provided authorized services pursuant to the terms and conditions set forth in the expired Concessions Contract CC-ROM0002-87 through an interim letter of authorization which expired on-December 31, 1993.
14. Also, the statement, "A visitor's impressions of Rocky Mountain National Park are affected by the appearance and professionalism of in-park concession operations, including the liveries..." gives the hint that the liveries are not operated in a professional manner.	14. The National Park Service does not intend to imply or suggest that the liveries are not operated in a professional manner. This phrase has been modified in the final plan.
15. Also, the statement, "There are several other locations adjacent to the park that meet the desire for visitors to ride horseback along with the statement, "Existing operations to be eliminated when no longer needed within the park boundary," indicate that the Glacier Creek and Moraine Park liveries could be eliminated although they account for 47% of the commercial horse use.	15. The statements quoted are those from the 1976 Master Plan, and are believed to be current and correct.

III. **General Comments**

Comment	NPS Response
1. The plan is grossly negative and I believe was written by people who do not understand the livery concessions, their needs and their demands.	1. The plan was developed by a team of professionals representing a wide variety of expertise. Some of these individuals have extensive experience in livery management, concessions management, environmental protection, and general horse use. Efforts were made to adequately balance protection of park resources and concession interests.
2. Please allow horse use to continue in Rocky Mountain National Park. Do not eliminate this recreational opportunity.	2. The park has continually stated through press releases, news articles, letters to the public, and "The Equestrian Planner Newsletter" that it is not the intent of the NPS to eliminate horse use. The purpose of the Commercial Horse Use Plan is to balance resource protection and visitor use.
3. Horses do not damage the park.	3. Extensive studies, as discussed in Sections 2.6.1. - 2.6.5., illustrate that horses damage natural resources, including trails. Thus, there is a need to manage commercial horse use.
4. Trail riding should be banned from Rocky Mountain National Park primarily for sanitation (manure) and trail degradation reasons, and because horses are not part of the natural setting of a national park, nor are they native to this continent.	4. Horseback riding is a traditional western activity that is accepted as one recreational opportunity in a wide range of opportunities that meet visitor needs and resource protection.

III. General Comments

Comments	NPS Response
5. Please keep the hikers in mind as you finalize your horse use plan. We are, after all, the vast majority of trail users.	5. The park has kept hikers in mind by mitigating potential horse/hiker conflicts under Sections 3.2.3. & 3.2.5. The park recognizes that hikers are the vast majority of trail users, but at the same time, it recognizes other valid park uses.
6. Traditionally, the commercial horse operations have cooperated with private horse users in allowing us to park trucks and trailers at their headquarters and rent extra horses from them. Trails are used by commercial and private users, and if it were not for the trails being maintained for commercial use, there would be many fewer places for private horse users. It is very difficult for me to see a total separation of commercial and private horse use as it is being presented by RMNP.	6. Commercial operations, by contract terms, allow only for guided rides, not for individual rentals. As outlined in the plan, especially sections 1.3, 1.3.1, and 1.3.2, it is required by law to manage commercial operations. This is distinctly different than the general public using the park for various recreational activities, including horse use. The park is also mandated by Congress to manage the park so as to preserve the resources by such means as will leave them unimpaired for the enjoyment of future generations. Eighty percent of park trails are open to private and commercial horse use.
7. If impacts to the park are a concern, then ail user groups should have a cap, including hikers.	7. The park currently limits overnight hikers in the backcountry to certain zones, campsites, and number in party. The subject of this plan is a commercial use that is being managed, not a general use. Limits are authorization requirements, they are not particular user group limits.

III. General Comments

Comments	NPS Response
8. The Commercial Horse Use Plan is based upon an out of date Master Plan.	8. The 1976 Master Plan is still in force, and still provides the fundamental direction for managing Rocky Mountain National Park. The Master Plan is not the only basis for development of a Commercial Horse Use Plan. Section 1.3 discusses various laws, regulations, and policies which also guide the management of commercial horse use.
9. We believe the NPS has not taken advantage of one of its best sources of information related to horse use issues: the liveries.	9. Since the beginning of the planning process, the park has involved the liveries with the development of the horse plan. The summer of 1992, which is when information compilation began for the plan, included discussions between a planning team member and some individual livery operators. In September 1992, the liveries were invited to a scoping meeting. The park's planning team includes one former livery operator, and a current livery owner. In the Spring of 1993, staff from the park met with some individual livery operators to field their concerns. Also, there has been ongoing communication with the liveries since the summer of 1992 on this issue by park staff, including the management assistant, trails foreman, chief ranger, sub-district rangers, and resource management personnel. At the request of livery operators and horse enthusiasts, the park formed a coordinating committee, including a representative from the Estes Park Liverymen's Association, to disseminate information to respective constituents.

III. General Comments

Comments	NPS Response
10. The liverymen ask the NPS to delay implementation of the preferred alternatives until a Limits of Acceptable Change (LAC) program, or other coordinated effort, can be undertaken.	10. Although developing an LAC plan may enhance and strengthen the management of commercial horse use as well as other park uses, we do not believe it necessary to delay decisions and implementation of this plan pending the significant levels of funding believed necessary to develop and implement an LAC program.
11. Horse use in the park should be discouraged.	11. Horse use in the park is a traditional recreation activity that is appropriate in a park setting, if managed properly.
12. Copies of complaint letters about liveries or stable guides should be given to the named livery immediately so they can deal with the situation. Complaint letters should be attached to each livery's contract, and considered when renewing the contract.	12. Currently, the park gives a copy of a complaint or compliment letter to a livery, if that livery is specifically named in the letter. For the future, copies of complaint or compliment letters non-specific to a livery will be provided to the Estes Park Liverymen's Association. Visitor comments are currently and will continue to be considered in the overall evaluation of concessioners.
13. Livery guides are a great asset to the park by providing information on the park's natural and historic features, and applying first aid on the trails. I feel that more education by the park and possibly issuing an actual badge or license of some sort could only increase our pride in what we do. This could be accomplished by more orientation meetings and/or a written guides manual.	13. The park recognizes that livery guides provide services to visitors through interpretation and first aid. As an operational requirement, liveries are responsible for providing interpretive services. It is the concessioner's responsibility to develop an interpretive program and an appropriate manual. The park can provide review and guidance in this development. The park currently provides a general orientation program for all NPS seasonal and concessioner employees.

III. General Comments

Comments	NPS Response
13. Continued.	13. Continued. Also, a special orientation program for the liveries is conducted by the Chief Ranger and the Interpretation Staff. Any more training by the park staff for the concessioners would require funding beyond the current park budget. The park encourages concessioners to conduct their own interpretation training.
14. Rocky Mountain National Park, by law, has been designated a multiple use area, to be enjoyed by all the visitors who wish to participate in the park experience.	14. Uses that are consistent with the park's mandate to "preserve natural conditions and scenic beauties thereof" are permitted (refer to Section 1.3). There is no applicable legislation for management of Rocky Mountain National Park that designates the park as a multiple use area.
15. The park must give priority to protecting park resources over the desires of the livery lobby. Understandably, the liveries in and around the park have a major financial interest in the outcome of the management plan, but the park should not be deterred from making major changes by a strong lobbying effort on the part of the liveries.	15. The park must take into consideration all public comments and available information for decision making processes. The park also must balance and manage all appropriate park uses so that park resources are preserved for the enjoyment of future generations.
16. The draft plan needs to address the impacts of each alternative from a baseline analysis, of no horse use, or very limited use.	16. Horse use predates establishment of the park. It is a traditional and appropriate recreational activity for park visitors. The park has added an alternative that addresses no horse use in the park under Section 3.2.6. "Alternatives Considered, but Rejected".

III. General Comments

Comments	NPS Response
17. The evidence cited in the Draft Management Plan supports the end of commercial horse use in the park, or the development of separate horse trails, partially built and completely maintained by commercial operators. The evidence is inconsistent with the park's preferred alternatives which suggest that commercial operators are given and should continue to be given preference over resource protection and general visitor enjoyment.	17. If properly managed according to this plan, the park believes commercial horse use can occur with acceptable changes to park resources, and be compatible with other park uses. The plan makes no inference that commercial operators should be given preference over resource protection and general visitor enjoyment.
18. There should be intensified education of all parties; riders on park rules and trail etiquette, hikers on high-use trails and park rules, and livery guides on ways to keep rides controlled (not grazing, on trails, etc.)	18. Yes, there should be intensified education of all parties. This is being done through the equestrian site bulletin, trails signed "heavy horse use," and the requirement for livery guides to conduct interpretive programs (Refer to Section 3.1.2.).
19. There must be increased communication between liveries, park officials and the public. If there has been a misconception that the park is trying to eliminate all horse traffic, it is because there was so little communication from park officials prior to the meeting about this problem in September, 1992. The ultimate user of the park is the public, and we have a right to know how our enjoyment is being affected by use plans.	19. Yes, the park should increase communication (Refer to Section 3.1.4.). The park currently communicates with the liveries through one-on-one communications with the park's management assistant, through the livery evaluation process conducted by rangers or the management assistant, and through the Estes Park Liverymen's Association meetings. The park communicates with the general public concerning management issues through press releases, public meetings, and public review periods, all of which have been used during the development of the Commercial Horse Use Plan.

III. General Comments

Comment	NPS Response
20. a) It is good that Rocky is finally developing rules and regulations for commercial horses. b) The program should be fair to all concerned. No program would please everyone, but this plan goes as far as possible. It is a good plan.	20. a) The park has always had some form of requirements governing commercial horse use. The park is not imposing regulations, but defining commercial authorization requirements. b) Thank you for your comment.
21. The Liverymen believe that this plan must be part of an overall effort to assess ail the resources and uses of Rocky Mountain National Park.	21. All uses and resources were considered in the master planning process for the park. The Commercial Horse Use Management Plan tiers off the Master Plan, and as such, is an implementation plan specifically addressing commercial horse use.
22. The commercial liveries are concerned that the planning process and this Environmental Assessment deviate from legal mandates to manage the park for all uses.	22. The National Park Service believes that the Environmental Assessment does recognize equestrian use as one type of recreational opportunity available to visitors, and addresses this commercial activity according to all appropriate legislation and policy.
23. The National Park Service must allocate funds more equitably to assure that the needs of all users are being met.	23. The National Park Service believes that funds are allocated equitably with priorities oriented towards visitor safety, visitor management and resources protection. and resources management.
24. The Liverymen ask that the National Park Service integrate the entire planning process to coordinate the management of all the resources and uses of the park.	24. Refer to comment #21 under General Comments.

III. General Comments

Comment	NPS Response
25. The National Park Service must recognize the public value of horse use and support it as part of this nation's heritage.	25. The NPS has repeatedly recognized the traditional and recreational value, and appropriateness of horse use in Rocky Mountain National Park.
26. The National Park Service's proposals concerning commercial horse use place a disproportionate burden on commercial liveries. The Liverymen believe that the National Park Service must take a more balanced approach to managing the various uses at Rocky Mountain National Park.	26. The NPS believes that this plan provides a balanced approach to managing the various uses in the park.
27. Until the National Park Service has an overall plan for dealing with horse use and how horse use interacts with other uses, this horse use plan is premature, ineffective and wasteful.	27. Refer to response #21 under General Comments.
28. a) The Environmental Assessment relies heavily on survey studies and scientific data that often are based on other parks or are outdated as well as unfounded assumptions. The preferred alternatives selected by the National Park Service should result from a focused investigation of the actual problems and resources in Rocky Mountain National Park, in 1993. b) The National Park Service should not substitute extraneous information concerning problems in 1970 or problems in other parks for an objective hard look at actual problems in 1993 at Rocky Mountain National Park.	28. a & b) The NPS has used all information available to develop the alternatives and to make the decisions on commercial horse use, and believes that the alternatives and decisions are based upon reasonably sound scientific and resource information.

III. General **Comments**

Comment	**NPS Response**
29. a) Although the Environmental Assessment claims that a coordinating committee represented commercial interests, our membership had no such representation. b) In addition, the planning team had no commercial representative.	29. a) Ms. Betty Whiteside, operator of the Silver Lane Stables, was a member of the coordinating committee, as was Mr. Wes House, operator of Winding River Campground and Stables. It is our understanding that Ms. Whiteside is a member of the Estes Park Livery Association, and indeed attended the meeting on October 19, 1993 by the Association and legal counsel which addressed the park Superintendent. Ms. Whiteside also attended two meetings with the planning team. b) The National Park Service is not obligated to have representation on the planning team of the commercial liveries. However, Mr. Bob Irvin, a member of the planning team, did provide significant representation of the commercial liveries during the planning process.
30. The National Park Service has not sought out the information and expertise of the liveries in selecting preferred alternatives that will most directly affect liveries. As a consequence, the plan is out of touch with the needs and wishes of the very public the park was established to serve.	30. Refer to response *#9* under General Comments. Also, the purpose of the park is not for economic or development purposes. Rather, it is the park working together with the commercial livery operators who serve the park visitor under commercial authorizations.
31. Under the Organic Act, the park is required not to prefer one use over another, but to provide opportunity for all uses.	31. Refer to response *#22* under General Comments.

III. General Comments

Comment	NPS Response
32. a) The entire Environmental Assessment discussion focuses on statistical information driven by permit levels. There is no information on how those permit levels match the current and formidable demand for horse use. b) The Environmental Assessment never analyzes the length of rides, the locations of rides, how the current HAOT's meet user demand, or even how HAOT's can be managed along with trail maintenance to maximize the park's capacity to meet demand. Without such a discussion, a statistical comparison of 1993 HAOT's compared to 1976 HAOT's has no value.	**32.** a) Refer to response #11 under II. Specific Comments. b) It is not the purpose of this plan, nor of the park, to maximize the park's capacity to meet demand for commercial horse use.
33. Any objective review of visitor use and demand for commercial horse use service would lead to the conclusion that the current level of livery service is unable to meet current visitor demand. This calls into serious question the basis for the finding that the current level of service is adequate.	33. The National Park Service believes that the service level mandated in the 1976 Master Plan is appropriate to balancing visitor use with resource protection.
34. a) The National Park Service does not recognize its role in providing horse riding experiences to young and old riders.	34. a) The National Park Service has repeatedly recognized the tradition and appropriateness of equestrian use in the park. This document does not discriminate between the ages of equestrian visitors.

III. General Comments

Comment	NPS Response
34. b) It also does not address whether long or short trips are good for the average visitor to the park who is not conditioned to ride a horse for a long period.	b) The National Park Service did address the alternative of a shorter one-hour ride. Refer to section 3.2.8. Two-hour rides are believed appropriate for the average park visitor to provide a quality riding experience while protecting park resources.
35. The Environmental Assessment expresses no understanding of the overall demand for horse use.	35. Refer to response #11 under Specific Comments.
36. The Liverymen believe this draft is inadequate in its scope and lacking in technical support for the preferred alternatives.	36. The National Park Service believes sufficient information is available and sufficient public input has been obtained to rationally and responsibly address commercial horse use in the park.
37. It is also important to consider the changes that have occurred in horse use in Rocky Mountain National Park. The providers causing the park the most problems seem to be day use stables where more people want to ride for shorter amounts of time.	37. The NPS indeed did consider the changes of horse use. These are discussed in Sections 2.3, 2.4, and 3.2.6.
38. The study does not recognize that many guest ranches that used to provide horseback riding experiences in Rocky Mountain National Park are now a piece of history, and those trails are being seldom used by horses or hikers.	38. Section 2.3. discusses the guest ranches and the commercial horse use history.

III. General Comments

Comment	NPS Response
39. Please consider using a disturbed area, such as the McGraw Ranch, for additional day use riding.	39. Alternative #5 under Section 3.2.6. does consider additional areas for commercial equestrian day use. Areas such as McGraw Ranch and Lily Lake in other planning efforts are being considered as trailheads for equestrian visitors.
40. Commercial horse use should be eliminated or greatly reduced.	40. Refer to response #17 under General Comments.
41. It is important to note that for some national park visitors, including many handicapped and elderly, traveling by horseback is the only manner in which they can experience the national park. To eliminate this opportunity may be seen as a violation of the Americans With Disabilities Act of 1992.	41. The National Park Service rejected the alternative of eliminating commercial horse use. Refer to Section 3.2.6.
42. The Liverymen feel as if they have not been adequately involved in developing the plan. The Liverymen are out on the trails and understand the issues surrounding commercial horse use as much as anyone. Yet the National Park Service did very little to solicit their ideas as it drafted the plan.	42. Refer to response #9 under General Comments. .

APPENDIX G.

Glossary

Best management practices - A practice or combination of practices that is determined by a State (or designated area-wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (Federal Register, Volume 40, No. 230 dated 11/28/75). .

Code of Federal Regulations (CFR) - A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government.

Day use - A visitor conducting any type of activity in a national park that does not include an overnight stay; either in a developed campground or a backcountry/wilderness area of the park.

Geographic Information System (GIS) - GIS's are systems of hardware, software, data, people, organizations, and institutional arrangements for collecting, storing, analyzing and disseminating information about areas of the earth. **Definition developed by the center for Urban Studies, Portland State University.*

Global Positioning System (GPS) - A navigational device that is capable of searching and locating any georeferenced location anywhere on the globe by use of satellites. Georeferencing accuracy varies among devices.

Horses at one time - the maximum number of horses allowed in the park by each concessioner at any one time. Varies from livery to livery.

Horse trip - each individual commercial horse using the park at any one time.

Hydric soil - Soil that is wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants.

Hydrophyte - Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content (plants typically found in wet habitats).

Length of ride - the entire ride from beginning to end, regardless of how much of the ride actually goes into the park.

Endangered species - Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the
1973 Endangered Species Act.

Limits of Acceptable Change (LAC) - A planning framework that establishes explicit measures of the acceptable and appropriate resource and social conditions in recreation settings as well as the appropriate management strategies for maintaining and/or achieving those conditions.

National Environmental Policy Act of 1969 - NEPA requires ail federal agencies to consult with each other and to employ systematic and interdisciplinary techniques in planning. All actions significantly affecting and quality of the human environment require a detailed statement on the environmental impact, and adverse environmental effects, and alternatives. Also established the Council on Environmental Quality.

Noxious weed - Noxious weeds are disruptive plants that are considered detrimental, destructive, injurious or poisonous to humans, native flora, or native fauna. Noxious weeds are non-native to the State of Colorado. These non-native plants occur at a given place as a result of direct or indirect, deliberate, or accidental actions by humans. Canada Thistle is a classic example of a noxious weed.

Recreational opportunity - The availability of choices for users to participate in the recreational activities they prefer within the settings they prefer.

Recreation Opportunity Spectrum (ROS) - A planning approach identifying a range of recreational environments across a spectrum ranging from urban recreation areas, rural countryside, highly developed campgrounds, intensively managed multiple-use forests, national parks, recreation and scenic areas, roadless wildlands, and wilderness. The ROS defines six classes: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Natural, Rural, and Urban.

Riverine - On or near the banks of a river; riparian.

String size - the maximum number of horses allowed per group on park trails. Constant for ail liveries.

Threatened species - Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. (See also endangered species).

User nights - the number of nights each individual stays overnight in the backcountry. i.e, 3 people camping 2 night equals 6 user nights.

Water table - the upper surface of a zone of saturation. No water table exists where that surface is formed by an impermeable body (Langbein and Iseri 1960:21).

Wetland - lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.