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DEVELOPMENT OF A NATURAL HISTORY INTERPRETIVE STUDY PLAN AT
GRANT-KOHR'S RANCH NATIONAL HISTORIC SITE

BY

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B. S., University of Montana, 1979

Presented in partial fulfillment of the requirements
for the degree of
Master of Public Administration
University of Montana

1988

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SECTION ONE

INTRODUCTION

The 337 units of the National Park Service encompass 89 million acres of public land set aside by Congress. Interpretation of these special places encourages appropriate and thoughtful use of the National Parks.² The National Park Service (NPS) has for decades been at the forefront of the interpretation movement in America. The official NPS description of interpretation emphasizes the breadth of its goals;

Instilling an understanding and appreciation of the value of parks and their resources, and through this process developing public support for preserving them, is the critical responsibility of interpretation. This should be the primary objective of a park interpretive program.³

From the beginning of the agency's existence as a federally funded program, established by the Organic Act of 1916, park personnel have had difficulty balancing the importance and emphasis on two conflicting mandates: use and preservation. Because the NPS manages natural, recreational, historic, and cultural parks, the various units within the system exist in urban as well as remote settings. Policies which are generated in the national office of the NPS in Washington, D. C. often are stated in such broad terms so as to apply to each type of park, that they often fail to specifically provide appropriate direction for any single unit. The NPS, like other

bureaucratic organizations suffers from the effects of size and attempts to streamline management policies.

Interpretive programs are the direct link between visitors and management. They are the product of federal policies, leadership at the unit level, and site specific resources, providing the foundation on which visitors understand and appreciate the National Parks. Freeman Tilden, often referred to as the "father of interpretation", defines the function called interpretation as, "An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experiences, and by illustrative media, rather than simply to communicate factual information."⁴

A significant policy effort has been made within the NPS to control the process of interpretive planning at each site. Federally generated documents provide the policy focus from the national administrative office to aid park managers in developing interpretive plans and programs. Each park unit must make its own appropriate decisions about the content of programs and what media choices are best suited for their site. Innovation, dedication, and creativity are necessary at the unit level to develop plans which provide visitors with the opportunities for unique experiences possible only in the National Parks. These experiences create not only public support for the Parks, but also a greater appreciation of the National Park Service mission.

An interpretive plan takes into account many factors, and is undertaken at the site level. It is dependent upon a myriad of elements which when combined into a site specific plan of action, can be used by park managers to broaden and underscore existing park themes. Some parks have large budgets and increasing visitation which enable existing visitor services, talks, and tours to be expanded, and newer programs added. Other parks have less staff, money, and time, but an abundance of opportunities at the site. Each park must weigh its own needs with the quality of existing programs, and assess the overall impact of the visitor experience, using each division within the unit organization to its fullest potential.

An NPS management policy manual states that one purpose of interpretation in the parks is:

To provide visitors with a foundation on which they can build an understanding and appreciation of parks and their significant natural, historic, and cultural values. The interpretive program is an integral function of park management, and should be employed as one of the primary means for achieving those objectives that directly relate to or are affected by the visiting public.⁵

Planning of an interpretive program is both an activity as well as a process. It requires that the research and development of the plan as a document be focused toward pre-established objectives which are unique to a particular site and its organization or agency.

At its best, such planning produces a program which is not an end in itself, but rather, a dynamic tool.⁶

Interpretive planning provides guidance and direction for the future. Without sufficient staff motivation and innovation, a plan alone will accomplish little. The recommendations for courses of action should be flexible enough to accommodate the acquisition of new information and research data, new technology, and changing social attitudes and values.⁷

In any park, the three areas of responsibility that comprise the broad function of interpretation are park resources, park visitors, and park management.⁸ This relationship between visitors, resources, and management is critical for the agency in carrying out its dual mandate -- to preserve the resources, yet accommodate their use and enjoyment for the benefit of the visiting public. The management policies of the NPS attempt to balance these often conflicting missions.⁹

Park managers use interpretation as one of their most valuable tools for building the public's understanding and support. Russell Dickinson, a former NPS Director has stated that none of management's programs are likely to succeed without public support, and developing that support is a major responsibility of park managers.¹⁰

In 1985, NPS Director William Mott, Jr. issued a management plan which will guide future actions at each unit in the Service. This plan, called the "National Park Service Twelve Point Plan" was developed by senior staff from the various management levels within the agency.

Figure 1 lists the twelve points. The overall emphasis of this plan is to stimulate the system at the unit level. Mott calls for park managers to become more aware of the variety of resources at each park, their present condition, their preservation, and their interpretive potential. From this directive park managers must broaden their perspective about the role of National Parks in society, and communicate more effectively the importance of the entire scope of parks as ecosystems, not just specific features unique to any given site.

This approach will enable the National Parks to become more responsive to critical resource issues that are of national or global concern. Parks are not islands that are removed from the effects of potential damage created outside park boundaries. "The State of the Parks 1980 -- A Report to Congress" has found the NPS to be seriously deficient in critical areas of research, science, and resource management activities. The report finds that the NPS has inadequately coped with the broad spectrum of internal and external threats to the parks.¹¹ Director Mott's Twelve Point Plan is a response to this report. References will be made throughout this paper to the Twelve Point Plan because of its importance to the future of the NPS and to the effectiveness of unit management policies.

This paper concerns one small unit within the NPS, Grant-Kohrs Ranch National Historic Site, and its

Figure 1

NATIONAL PARK SERVICE 12-POINT PLAN

1. Develop a long range strategy to protect our natural, cultural, and recreational resources.
2. Pursue a creative, expanded land protection initiative.
3. Stimulate and increase our interpretive and visitor service activities for greater public impact.
4. Share effectively with the public our understanding of critical resource issues.
5. Increase public understanding of the role and function of the National Park Service.
6. Expand the role and involvement of citizens and citizen groups at all levels in the National Park Service.
7. Seek a better balance between visitor use and resource management.
8. Enhance our ability to meet the diverse uses that the public expects in the National Parks.
9. Expand career opportunities for our employees.
10. Plan, design, and maintain appropriate park facilities.
11. Develop a team relationship between concessioners and the National Park Service.
12. Foster and encourage more creativity, efficiency, and effectiveness in the management and administration of the National Park Service.

Source: U.S. Department of the Interior, National Park Service, "12-Point Plan: The Challenge" (Washington, D.C.: Government Printing Office, 1985).

interpretive services. I have developed a natural history interpretive study plan for the site, which will add substantially to the existing interpretive program. Several key areas of research which comprise the bulk of this project are:

- 1) Community, State and Federal input by individuals, special interest groups, state agencies and other units within the NPS similar to Grant-Kohrs Ranch.
- 2) Field research at the site.
- 3) Political context of Federal policies governing NPS actions, and their relationship to Grant-Kohrs Ranch.
- 4) Interpretive planning as a process involving a series of logical phases.

In this paper I will also discuss the benefits of this specific program for the organization itself, as well as benefits for the future and long term protection of the site resources.

OVERVIEW OF THE SITE, MISSION AND GOALS

Grant-Kohrs Ranch National Historic Site (GRKO) is a relatively new addition to the National Park Service System. Established by Congress in 1972, its purpose is, "To provide an understanding of the frontier cattle era of the Nation's history, to preserve the Grant-Kohrs Ranch, and to interpret the nationally significant values thereof for the benefit and inspiration of the present and future generations."¹² This purpose is part of a larger mission which applies to all NPS units, "... to conserve the scenery and the natural and historic objects and the 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."¹³

Several statements made during Congressional Committee hearings prior to designation of Grant-Kohrs Ranch as part of the National Park System, help to frame the context in which the decisions were made governing the site's mission. The following is from the House Report No. 92-1222, July 18, 1972:

The objective of this historic site is to describe livestock ranching as it matured and contributed to the western culture and not to memorialize the individuals directly involved.

and from Congressional Record -- House (August 14, 1972) H7595, Mr. Aspinall:

Mr. Speaker, I want to emphasize that this historic site is not being created to memorialize any particular individual. The significance of this site is that it symbolizes an important element in the heritage and growth of the West -- it is, in effect, the 'Home on the Range' that we think about when we reminisce about the Old West. Naturally, it is difficult to separate the ranch from its operators and I expect that a great deal will be told concerning Conrad Kohrs, who was a distinguished Montana citizen, and his family when the historic site is established.

and from H7598, Mr. Saylor:

The purpose of this bill is to establish Grant-Kohrs Ranch National Historic Site and restore the structures and area to a condition to accept visitors into an operating cattle ranch scene.

Mr. Skubitz:

The purpose of this bill is to preserve this area and its historic structures and objects to illustrate and create a public understanding and appreciation of livestock ranching and the frontier life.¹⁴

Over 1400 acres of NPS holdings and scenic easements at GRKO comprise the site.¹⁵ This acreage, along with its fiftyfour historic structures was acquired from the National Park Foundation after the site was sold in fee by Conrad Warren, the grandson of Conrad Kohrs. The site was included in the National Park System primarily because it well represents the many periods and changing eras of cattle ranching since the 1800's, and also because the surrounding area is relatively undeveloped. In other words, the historic scene is essentially intact.

For the past 11 years (the site was opened to the

public in 1977) visitors have been offered ranger-guided tours of the ranch house and a self-guided tour of assorted barns, sheds, a blacksmith shop and a bunkhouse. These basic visitor services are supplemented by a weekend chuckwagon cooking demonstration which is scheduled in July and August. Several other loosely organized ranching demonstrations take place in the lower yard of the main ranch complex during periods of highest visitation.

These services, although part of a minimum interpretive program, make up the experience of Grant-Kohrs Ranch. There are many untapped opportunities available at the site, one of which is the interpretation of the natural environment and its relationship to ranching and frontier life. Figure 2 is a map of the Ranch showing the various management zones and their present use at the site. Figure 3 is a boundary map.

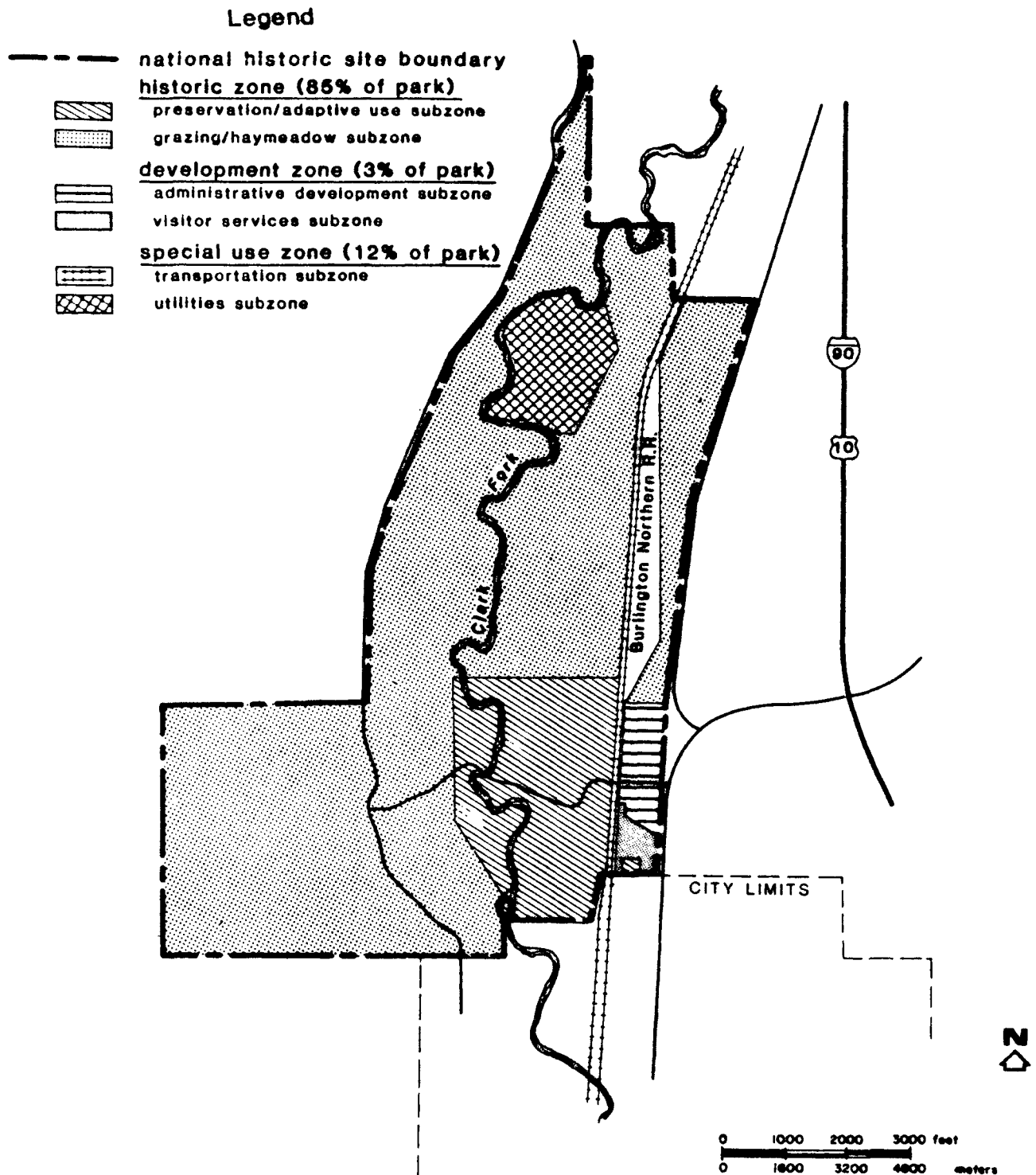


Figure 2. Existing Management Zoning Map
Grant-Kohrs Ranch National Historic Site - Montana
 United States Department of the Interior - National Park Service

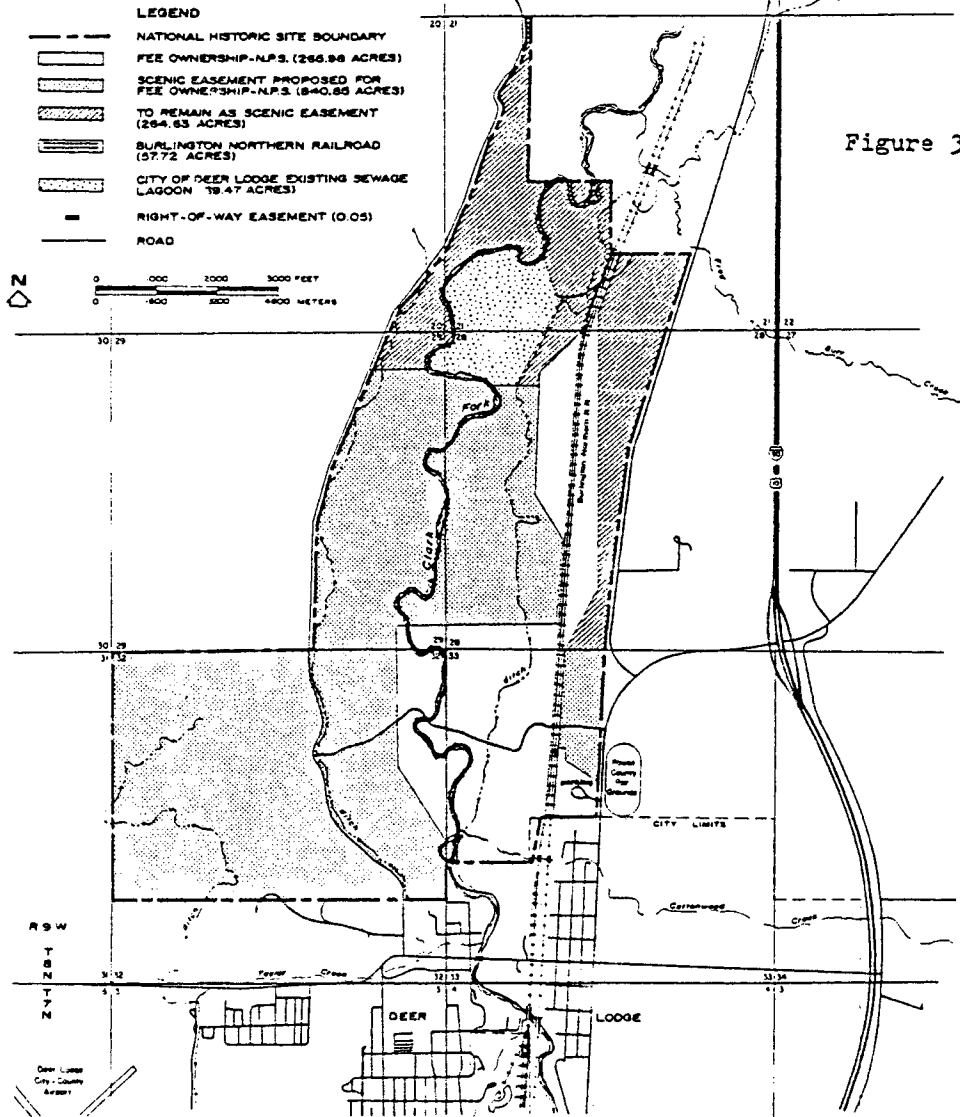


Figure 3

BOUNDARY MAP
GRANT-KOHR'S RANCH NATIONAL HISTORIC SITE
 POWELL COUNTY, MONTANA
 T8N, R9W, MONTANA PRINCIPAL MERIDIAN
 U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

ADMINISTRATIVE ORGANIZATION AND VISITOR USE

Grant-Kohrs Ranch personnel consist of permanent and seasonal employees. During FY 1987, there were 14 permanent positions, 14 seasonal positions and 4 Youth Conservation Corps (YCC) positions. These positions are divided among four divisions; Administration, Interpretation and Resource Management, Maintenance, and Curatorial. Figure 4 is an organizational table depicting the structure of these divisions within the organization. The divisions have fairly narrow ranges of responsibility with little or no overlap into shared areas.

One exception is the Interpretation and Resource Management division. Its area of responsibility is rather broad, considering the importance of each area to the park's mission. This division is responsible for the ranching aspect of the site, the "scene of an operating ranch headquarters" mentioned in the Congressional hearing referred to earlier. It is also responsible for all interpretive and visitor service operations as well as management of the sites natural resources. The weightiness of these areas, in terms of their impact on the overall park management objectives, is apparent when compared to the responsibilities of the other divisions. It should also be noted that this division is indirectly responsible for all visitor contact at the site, from orientation at the visitor center, to house tours and ranching demonstrations. New

GRANT-KOHRS RANCH NATIONAL HISTORIC SITE

Deer Lodge, Montana

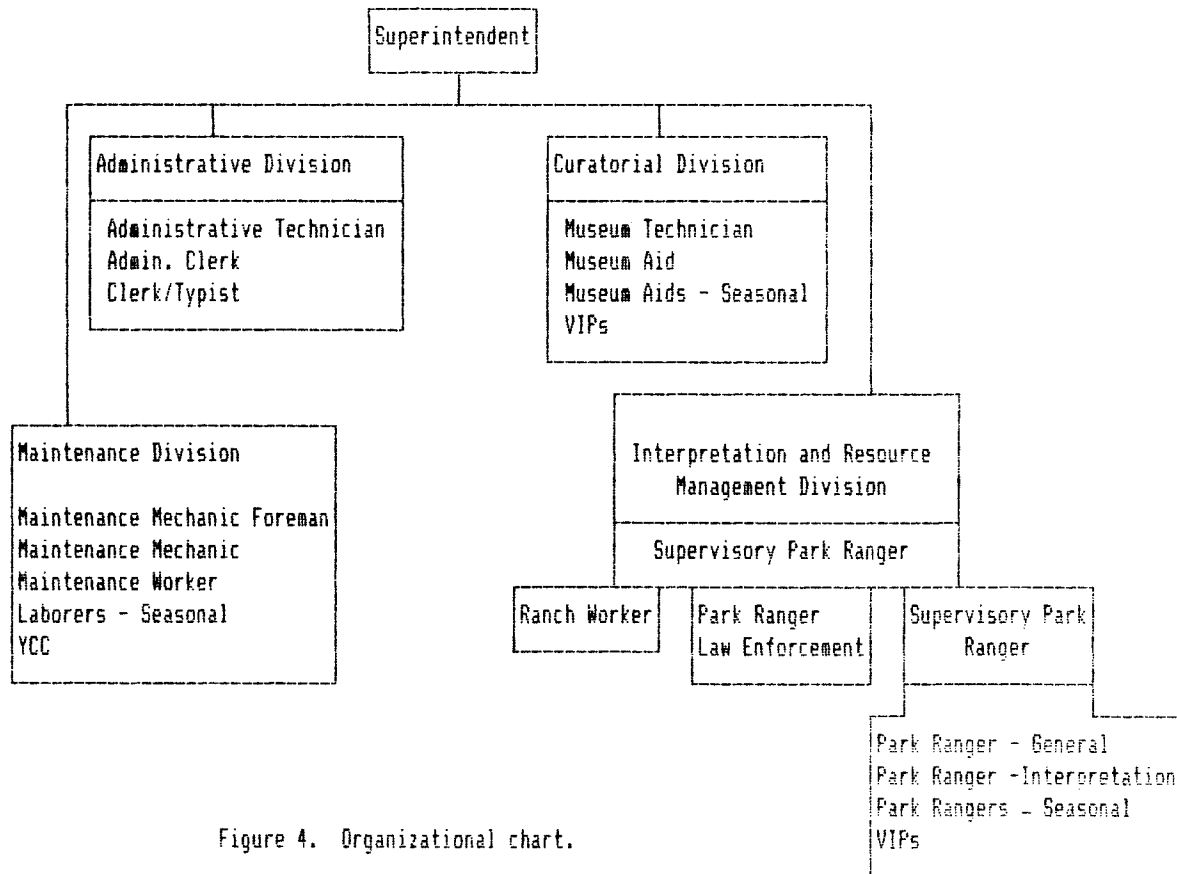


Figure 4. Organizational chart.

programs or services (of the type which this study plan suggests) generally impact all divisions within the organization, from the development of ranger-guided tours by the Interpretation and Resource Management Division to the addition of minimal park improvements by the Maintenance Division.

Each of these divisions fall under the general direction of the Park Superintendent. The superintendent delegates most responsibility and decision-making of each division's policies to the division head, although ultimate decision-making authority in many areas rests with the superintendent. Just as in most organizations, the park unit's decision-making structure reflects the style, background, and personality of the Superintendent. His management style represents organizational, as well as personal needs.¹⁶

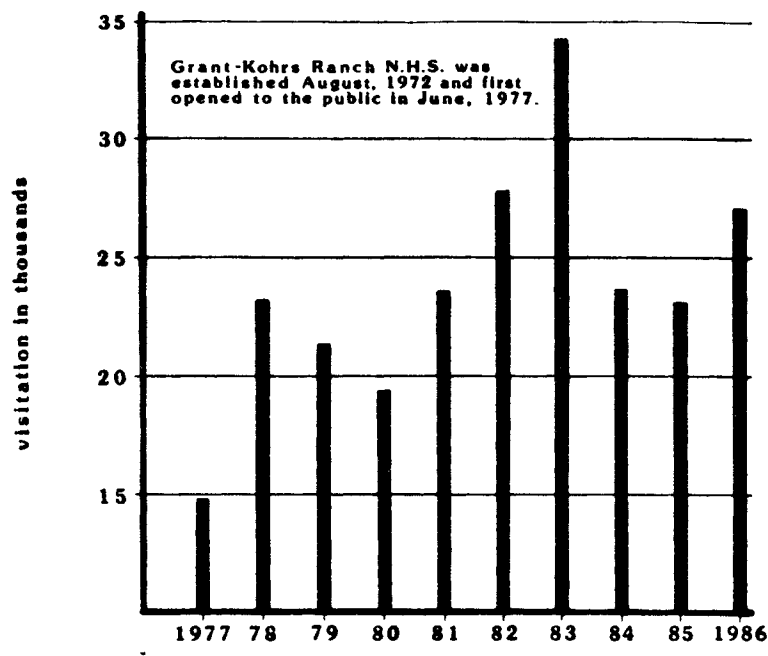
Few changes have occurred within the organizational structure at GRKO since 1977. Twice the number of visitors that are presently served each year could be served at the current staffing level.¹⁷ Therefore, if programs are initiated which raise visitation and require use of uniformed seasonal rangers, no new personnel will be required.

At small park units, where visitation is low, effective use of what resources are available and development of programs requiring low maintenance and low start-up costs are essential. It would be difficult to justify an

expensive program whose cost is out of balance with current and projected visitation levels. The natural history interpretive program developed in this paper would rely mainly on existing park resources used to a greater potential than at the present time.

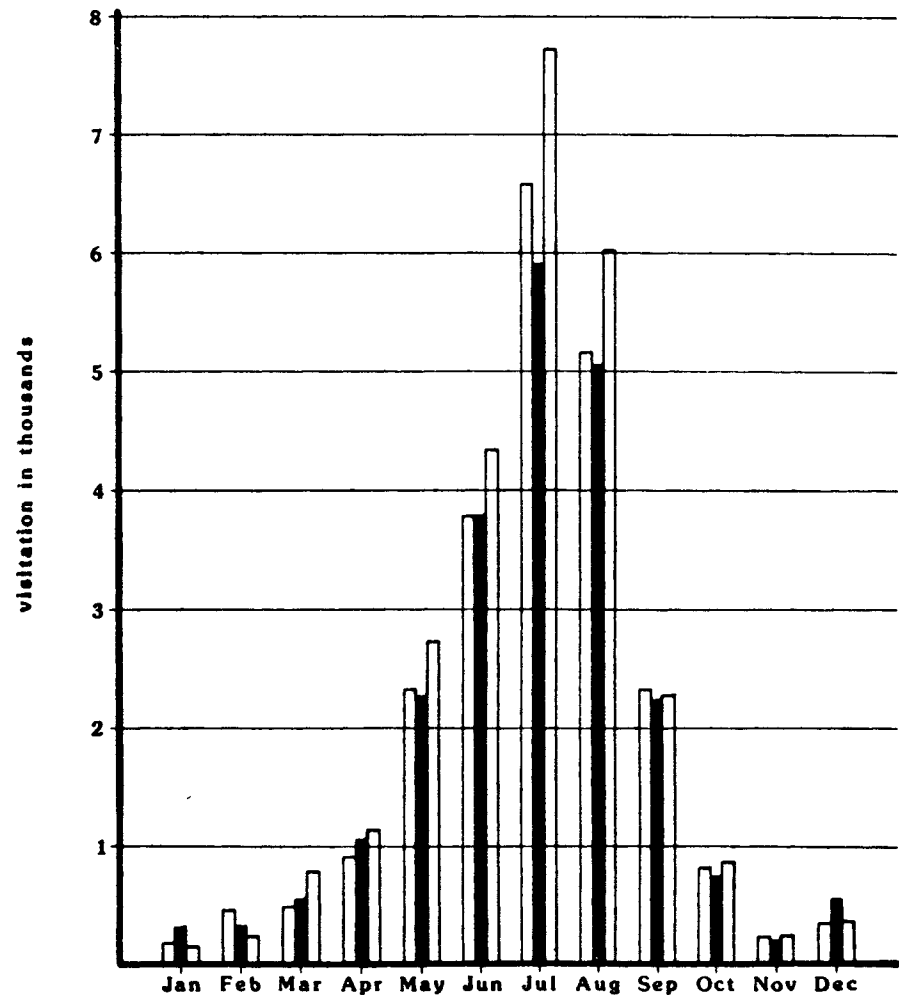
Visitation at GRKO in FY 1985 was over 27,000 and in FY 1987 had dropped to below 23,000. Figure 5 shows the fluctuations in visitation over a 10 year period. It appears that the Ranch has experienced a downward trend in visitation since its peak year of 1983, and should consider ways to reverse this trend.

Grant-Kohrs Ranch is located on the outskirts of the city of Deer Lodge, Montana, which is on Interstate 90, the major transportation route through the state. This asset should not be underestimated, as many parks struggle with the remoteness factor in getting visitors off the beaten track to visit their site. Another nearby National Park is Big Hole Battlefield National Monument, located on Montana Highway 43 near Wisdom, Montana, which could be characterized as a remote site. Yet, its visitation ranges between 32,000-50,000 people each year, far exceeding that experienced at GRKO.¹⁸ Within the city limits of Deer Lodge is the Historical Montana Territorial Prison and Towe Ford Museum. This historical attraction was visited by 51,000 people in 1986.¹⁹ This figure, compared to the 23,000 visitors to GRKO, reveals that more than 50 percent of those visitors touring the Prison and Ford Museum did not visit



Annual Visitation

Figure 5



Monthly Visitation, 1984-86

Grant-Kohrs Ranch.

Further observation of park user patterns at the Ranch shows that 9 percent of the visitation is by local residents and 24 percent by regional residents.²⁰ This combined visitation of 33 percent by local and regional residents gives insight into the importance of the repeat visitor. All of these visits could potentially be repeated in future years, particularly with the addition of new programs. The addition of special seasonal natural history talks and presentations could bring local and area residents on return visits, particularly during the off-season. Grant Sharpe suggests that park managers be aware of the danger of presenting the same information over and over to repeat visitors.²¹ If visitors to Grant-Kohrs Ranch believe that once they have toured the Ranch buildings then they have "experienced" the Ranch, then efforts should be made to address the question, "What can we offer to the repeat visitor?" The 33 percent who fall into this visitor category should not be ignored. In this respect, an attempt to bring Grant-Kohrs Ranch closer to the community, the state, and their special needs may be important for the future of the Ranch.

Director Mott has directed the NPS to "expand the role and involvement of citizens and citizen groups" by seeking input at the local level.²² This mandate suggests that issues and concerns of the community may, in fact, be important for the NPS to address. Examples of issues which

may fall into this category, pertinent to the community of Deer Lodge and similar, small, ranching towns, are weed control, land use conflicts, survival of small agricultural communities, and localized sources of pollution. By incorporating these issues into interpretive programs, Grant-Kohrs Ranch would not only be taking into account the concerns of local and regional visitors, but would also be providing perspective for all visitors as to the context in which the various cattle ranching eras of Western history developed concurrently with changing environmental conditions and problems.

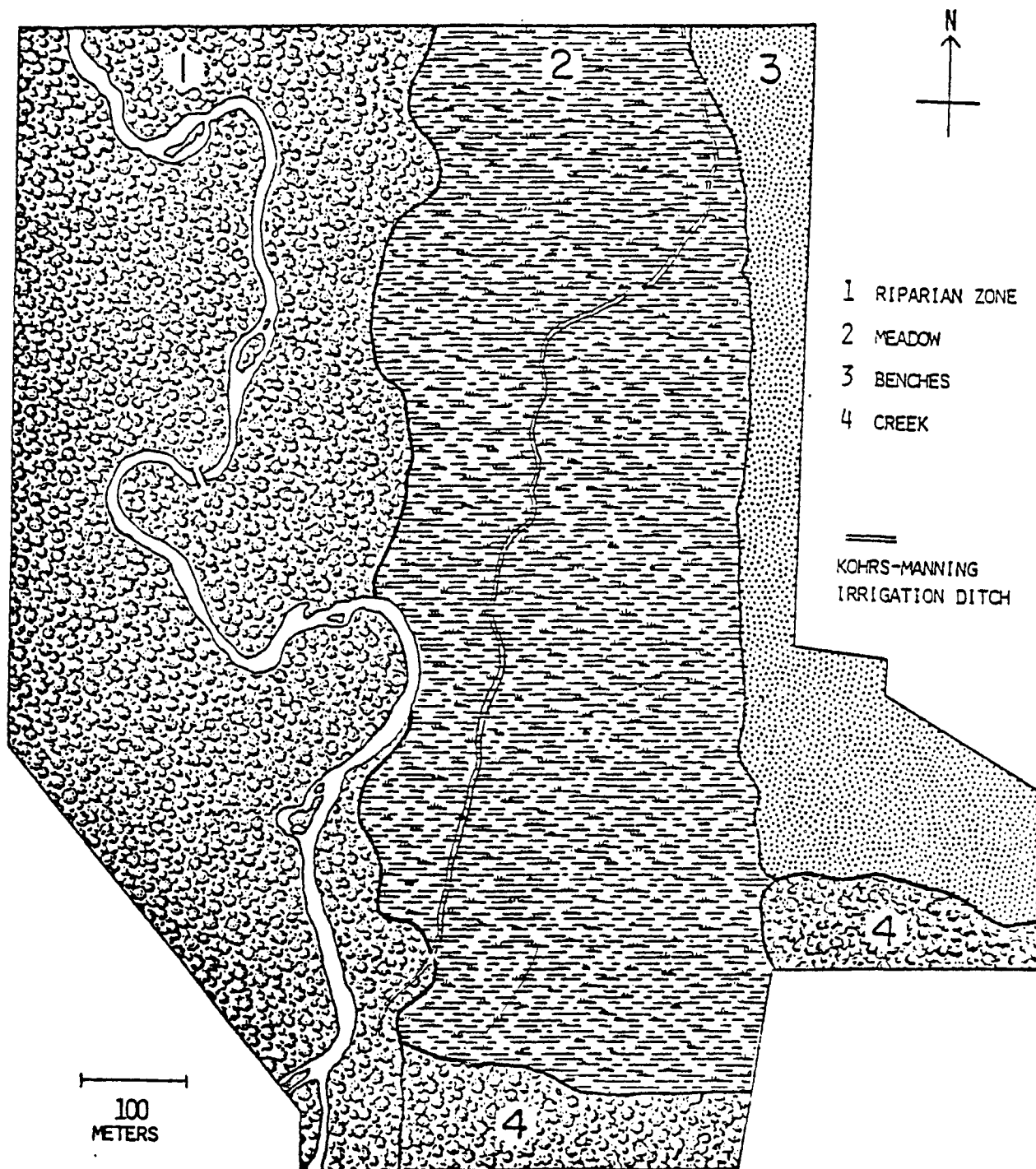
Other visitor characteristics important to this plan are the high number of school group tours during the spring. Approximately 2000 of the visitors to GRKO in 1987 were made by school group tour participants. This figure accounts for about 9 percent of the total GRKO visitation for that year. These groups are predominantly from western Montana schools, and field trips to the site are part of their junior high or high school Montana History course. Some of the communities represented by these school groups are Kalispell, Helena, Plains, Butte, Missoula, and Philipsburg.

HISTORICAL SIGNIFICANCE AND NATURAL HISTORY INTERPRETIVE POTENTIAL

Grant-Kohrs Ranch has an adequate resource base to effectively interpret the Western cattle frontier.²³ The site is characterized by four vegetative zones identified in a baseline study done in 1984.²⁴ These zones are influenced by different soil types and availability of moisture. Figure 6 is a map delineating the four zones; (1) riparian (river) zone, (2) meadow zone, (3) bench zone, (4) creek zone. These zones historically were all used for grazing purposes. As cattle ranching changed through the years, the meadow areas were irrigated, exotic hay species were introduced and the ground was fertilized.²⁵ Cultivation drastically changed the ranching environment, as did the closing of the frontier. Ranchers were forced to become conservation-minded, and to use more wisely the resources close at hand. The location of the home ranch headquarters and its proximity to available water supplies was of increasing importance throughout Western history. Evidence of this is found at GRKO in its different systems of irrigation ditches and diversion structures. The eventual fencing of the range led to changes in cattle ranching practices, and examples of several fencing techniques are present at different areas of the ranch.

Each of the above-mentioned site features (cultivation, irrigation, and fencing) are examples of the cultural modifications that are important to the history of the frontier cattle rancher achieving success.

Figure 6. Vegetative Zones



Source: Ray, Gary and Peter Rice, Floral and Faunal Survey and Toxic Metals Contamination Study of the Grant-Kohrs Ranch National Historic Site (Missoula, Montana: University of Montana, May 1984) p. 8.

Perhaps due to the apparent vastness of the frontier, the "myth of superabundance" predominated in the mind of the frontiersmen.²⁶ Utilitarian attitudes produced conflicting use patterns, as ranchers co-existed with other thriving entrepreneurs. Placer mining and logging caused excessive erosion and silting of streams, impacting watersheds in the Deer Lodge Valley and ultimately the wildlife resource. Early attempts at conservation legislation and the writings of early conservationists reflect the sentiments of a prominent Deer Lodge resident, legislator and conservationist. In 1865 Granville Stuart wrote,

The Deer Lodge Valley is famous for two things, one is that mountain trout are more plenty in it than any other place of the same extent in the world... If the legislature does not enact some laws in regard to game and fish, there will not be in a few years so much as a minnow or a deer left alive in all the Territory.²⁷

The environmental modifications which reflect so well the history of extractive industries and agricultural pursuits in the West provide insight for an appreciation of the struggles early settlers were faced with. Grant-Kohrs Ranch provides an excellent setting for this understanding.

Mining is perhaps at least as important to the existence of Grant-Kohrs Ranch as the cattle herds. Conrad Kohrs came to Montana and quickly saw the importance of feeding the large numbers of miners in the area. The roots of his eventual fortune began in butchering and selling meat to mining camps scattered across southwestern Montana. As

his empire grew in cattle ranching he diversified his interests into mining activities as well. He was instrumental in bringing irrigation water to the Valley and also provided financial backing for the development of water used in mining. As early as 1887, Montana legislators recognized that mining and irrigation ditches were detrimental to fish populations.²⁹ Even in these early years, protective measures were being sought to protect the natural resources of the Valley.

A prominent feature of the Grant-Kohrs landscape is the Clark Fork River. It runs through the entire length of the National Park boundary, and provides a unique opportunity to interpret the conflicts that existed between cattle ranching and other resource use and misuse patterns. The park lies within the Silver Bow Creek Superfund Site, one of four sites along the Clark Fork River Basin. The Silver Bow Site includes several thousand acres of mine tailings stretching from Butte to Deer Lodge. Bruce Farling, in an article about the Clark Fork River reports, "It is the legacy of one hundred years of mining without environmental regulation."²⁹ Fish populations of today in the Clark Fork River are estimated by biologists to be 10 percent of its potential.³⁰ A recent (1987) fish kill that numbered in the tens of thousands was the result of rain-induced flushes of heavy metals from streamside mine wastes. In contrast, Conrad Kohrs writes in his autobiography of the Deer Lodge River in

1862, now, the Clark Fork River of today,

About twenty miles above Deer Lodge our trail led along a river of the same name. It was a beautiful stream, the water clear and sparkling and alive with the finest trout, and the same was true of every small stream we crossed. ²⁵¹

The riparian zone of the River within the Park boundary displays vividly the effects of mine wastes on vegetation. A 1984 study of the Park's vegetation and toxic metals problem provides valuable source material for future research and monitoring. Several important findings were:

- 1) Toxic metal enriched sediments transported by the Clark Fork River and deposited on the floodplain, account for the contamination from upriver mine and smelter tailings. The River is the predominant and continuing mechanism for the depositing of these sediments.

- 2) The riparian zone has the most severely contaminated soils. Soil metal concentrations in the meadows and hayfields are also significantly elevated over clean control areas and check plots.

- 3) The riparian zone has unusual areas of non-vegetated soil surface, consisting largely of mine and smelter tailings deposited by the river which preclude plant growth. These "slickens" account for approximately 0.6% of the Ranch acreage. Soil microbial enzyme activity is reduced by 82% in these areas.

- 4) Caution levels for recognizing potential plant toxicity for cadmium, copper, and arsenic were found to be exceeded in 16.1%, 51.6%, and 35.5% respectively, of all one

hectare (1 hectare=2.47 acre) divisions of the Ranch. Large portions of the Ranch have average metal contamination levels in soils up to 32 times greater than other areas of the Deer Lodge Valley not subjected to river deposited pollutants.³²

These four findings are important to the Ranch because they display the contemporary problems associated with the effects of the mining era in the Clark Fork Basin. The mining industry developed during the same period as did western cattle ranching, and as the population grew along with the mining boom, the demand for beef was high. Associations between mining and ranching are historically tied because cattlemen like Conrad Kohrs became aware early on that as mining boomed, the population grew, and a ready market for beef was available. From 1880 to 1890 the population of Montana increased from 39,000 to 143,000, the largest jump in the state's history.³³ Today, the effects of the mining boom are still apparent.

The recent revival of a \$50 million State sponsored law suit against Atlantic Richfield Co., the present owner of the Anaconda Company, has reinforced the importance of this issue to the State. Governor Schwinden committed a \$200,000 legislative appropriation to secure vigorous legal services aimed at reviving the 1983 suit.³⁴

A recent report from the State Department of Health and Environmental Sciences and the Department of Fish, Wildlife, and Parks, states that the Berkely Pit in Butte is now

rapidly filling with water since the Anaconda Company pulled out in 1983. When this water - laced with heavy metals - begins seeping into nearby waterways it will find its way to Silver Bow Creek and ultimately the Clark Fork River. The States prediction is that discharges could reach 6,000 gallons per minute of mining wastes into the River.³⁵⁵

Grant-Kohrs Ranch provides a unique setting for interpretation of the parallel rise of the cattle and mining eras. Much of the riparian zone at the Ranch is visibly distressed due to heavy metals. Dead stems of arborescent shrubs and bare soil composed primarily of mine tailings exist all along the River. Although fish populations are extremely depressed in the Upper Clark Fork Basin, other wildlife frequent the meandering stretches of the River and its associated willows, old channels, and sloughs. The 1984 Floral and Faunal study of the Ranch confirmed the presence of twenty-seven different species of birds and ducks, and nine mammal species, although local biology teachers report sighting of many additional species.³⁵⁶ Migratory birds and beavers find available habitat in the vicinity of a swamp and a two hectare oxbow lake at the Ranch.

The use and protection of wildlife were important to Montana's earliest settlers. The Deer Lodge Valley was full of wildlife when Conrad Kohrs arrived here, and the need for protection was recognized soon afterward. In 1872, Granville Stuart sponsored a bill in the Seventh Legislative Assembly to protect through a closed season (between

February 1 and August 15), mountain buffalo, moose, elk, deer, mountain sheep and goats, antelope, hare, and song birds, as they were being slaughtered wastefully.³⁷ This closed season would protect animals during gestation periods to help assure the existence of future populations. The inclusion of song birds in the protective measure displays the importance of insectivorous birds to agriculture, and farmers supported this measure.³⁸ This bill became law in the same year and was expanded in 1876 to include limited protection for beaver, otter, martin, fisher, and all migratory waterfowl.³⁹ This legislation was partially the result of the population explosion by settlers during this period in Territorial history. "Land that had historically supported an abundance of wildlife metamorphosed into cattle ranges."⁴⁰

Current vegetation at Grant-Kohrs Ranch is dominated by exotic species of grasses. These occur as introduced hay species, pasture grasses, and as weedy species. During the expansionary years of the open range cattle era, native grasses dominated the valleys and plains of Montana, and provided the necessary forage for the huge cattle herds. The native grasses were particularly well suited to withstand periods of drought common in the West, but overstocking and overgrazing drastically reduced the range condition.

Late 19th century cattle ranching on the open range was also characterized by chaos and violence. Conflicting use

patterns emerged as cattlemen pitted against sheepmen and stockmen against settlers.⁴¹ The concept of regulated grazing began with the setting aside of forest reserves from the public domain. Congress passed the General Land Law Revision Act in 1891, and by 1899 a stock permit grazing program was instituted. New rules governing the use of the range ultimately had a stabilizing effect, as stockmen were forced to realize the importance of their home ranch. This base property, if it had good water supplies and irrigable haylands would provide the essential ingredients for future operations like winter feeding.⁴²

The concentration of efforts to produce winter feed for cattle prompted the introduction of exotic hay species, and Grant-Kohrs Ranch has several fenced pastures in various stages of production and use throughout the year. In contrast to these pastures is a small, fenced, 11 hectare parcel lying adjacent to the eastern boundary of the Ranch. It is a dry upland bench site presently owned by Burlington Northern Company. References to it, particularly those found in the 1984 Floral and Faunal Study describe it as a prairie relict.^{43,44} This site provides an example of the native bunchgrass communities which thrived in the Valley before the range was changed by development and cultivation. The study states that this remnant of native mixed grasses is "relatively intact", but since the time of the study the invader and weedy species spotted knapweed, has become more dominant.⁴⁵ This ungrazed and uncultivated site has

potential for interpretive and research use and will be discussed later in this paper.

Like most other ranches in Montana, Grant-Kohrs Ranch has experienced the prolific spread of exotic weedy plant species. The most dominant and problematic of them is spotted knapweed, (*Centaurea maculosa* Lam.). Spotted knapweed was documented in the State in 1920 and since that time has reached epidemic proportions in western Montana. It was most likely introduced as a contaminant of hay or alfalfa seed.⁴⁶ This noxious weed is already damaging the productivity of over 2 million acres of forests and rangeland in western Montana alone.⁴⁷ The spread of weeds is considered to be one of the most dramatic and important issues for range managers today.

Typically, knapweed encroaches into areas that are disturbed, overgrazed, or are exposed to people and their activities. These conditions are often persistent at sites such as Grant-Kohrs Ranch, where use of ranch machinery and vehicles is common, and pedestrian traffic is heavy during spring and summer.

The Montana Weed Control Association has estimated that weeds cost the state of Montana between \$80-100 million each year in lost agriculture and rangeland, lower crop quality, and increased labor and equipment costs.⁴⁸ Grant-Kohrs Ranch is faced with increasing populations of knapweed and other exotic plants recognized as noxious weeds by the Montana State Department of Agriculture. This invasion not

only deteriorates the site integrity, but also will decrease species diversity over time, as knapweed is a fierce competitor and may release a chemical toxin which decreases adjacent vegetation.⁴⁹ Knapweed is found along all roadways and other disturbed areas at the site.

PHASES OF INTERPRETIVE PLANNING

In order to develop a natural history interpretive study plan for Grant-Kohrs Ranch, I divided the project into a series of logical phases. These phases allow for appropriate NPS personnel and interest group input and research data gathering, as well as analysis and synthesis of alternatives. Appropriate action can be taken if all possible alternatives are considered. The format of this technique was developed by Grant Sharpe, a researcher, educator, and long term NPS employee.⁵⁰

Interpretive planning involves seven distinct phases. Although the planner does not always participate throughout the entire process, these phases all should take place to assure that an appropriate and feasible plan is implemented that meets user and organizational needs. These phases, in order of their occurrence in the planning process are:

- (1) Determining objectives,
- (2) Inventory and data collection,
- (3) Data analysis,
- (4) Synthesis of alternatives,
- (5) The plan, focusing on selected alternative or recommendations,
- (6) Implementation,
- (7) Plan evaluation and revision.

For the purpose of this particular study plan, the process has been modified in several ways. Phases six and seven should occur if the plan is accepted and implemented at GRKO, but they are not comprehensively addressed in this plan. However, the guidelines are addressed in outline form. Implementation, evaluation and revision will be

accomplished if the study plan is eventually used by GRKO managers in the future. This plan does address phases one through five as well as the rationale and justification of natural history interpretation. It is the preliminary work necessary to provide direction for future action.

Phase I - Determining Objectives

To begin the process of interpretive planning, objectives need to be defined. This will limit the plan to the confines of what a particular site, in this case GRKO, can expect to accomplish through the plan's implementation. These objectives should be specific to the park, and should enable the staff to understand how natural history interpretation will provide visitors with a better knowledge of the parks resources.

To begin this process, I sent a memorandum to each division head explaining this phase of interpretive planning, asking for their individual ideas and concerns. Several weeks later I held a meeting with GRKO division heads and the park superintendent, where ideas could be exchanged and verbalized. There appeared to be a major concern over site integrity (character) and preservation of the historic scene. Other objectives specific to individual divisions' area of responsibility were expressed. These included protection of archaeological resources and artifacts, global environmental pollution, pest management, recreational opportunities, and historic manipulation of the river bank to control pasture size.

From these responses, specific objectives were written which would guide the direction of future planning. The development of these objectives helps to determine appropriateness of visitor programs, because all aspects of the plan should be oriented toward meeting the stated objectives. Since Grant-Kohrs Ranch has as its predominant theme the open range cattle era, the objectives integrate the importance of the land to this site's integrity, within a historical perspective of ranching and frontier life. The six objectives listed below emphasize the natural history sub-theme of Grant-Kohrs Ranch and also provide the foundation for additional interpretive services. Each has an accompanying second level objective which is more specific and will act as a guide in recognizing site opportunities relevant to meeting the stated objective.

(1) Intensify the relevance of the visitor experience toward a greater understanding of park values and the NPS land ethic.

Although the main ranch complex consists of the "built environment" of Conrad Kohrs and John Grant, this is by no means the extent of the ranch resources. To encourage visitors to explore the physical environment at the site is to further their understanding and appreciation of frontier life. However, the micro environment of barns, buildings, sheds, and living quarters exists within a "larger" environment of rangeland, cultivated fields, pastures, open expanses of undeveloped land, and the river environment that

visitors should be encouraged to explore.

Second level objective: Allow visitors the opportunity to interact in some way with the natural environment of the Ranch to gain first hand experiences which could enhance their visit.

Director Mott has encouraged park managers to take a more holistic approach to interpretation and visitor service activities at the unit level.⁵¹ This approach considers each park as a mosaic of resources - natural, cultural, and historic, providing excellent opportunities to convey a message of an environmental/preservation ethic. "We will expand the role of interpretation by telling people how each park's features contribute to the values of the entire National Park System and to the quality of life."⁵²

The conservation ethic is a fundamental part of the NPS history, and most likely stems from the early NPS years as an era of acquisition of predominantly natural areas. Later on, the NPS expanded its role and began acquiring cultural and historic sites as well.⁵³ The Conservation Foundation, a non-profit environmental research group, has stated that interpretation is "of central importance to the future of the National Park Service system."⁵⁴ That future is based upon the ability of park managers to recognize interpretive opportunities which will convey park values of conservation and preservation to the visiting public.

(2) Instill in visitors the importance of the role of the natural environment in the success of the open range

cattle industry.

It is inconceivable to suggest that the natural environment was not a major factor in the success of the frontier cattlemen. Due to the relatively mild winters, availability of water, proximity to varied markets, abundance and quality of forage grasses, and the existence of huge expanses of open range, the range cattle industry flourished here.

Second level objective: Show visitors examples of the various environmental influences which affect the cattle industry.

The 1987 Annual Statement for Interpretation and Visitor Services states that the purpose and significance of Grant-Kohrs Ranch is "To provide an understanding of the frontier cattle era of the Nation's history... and to interpret the nationally significant values..."⁵⁵ Much of what makes Grant-Kohrs Ranch significant and unique relates to its location: the pastureland, the scenic values of the Valley, and the lack of adjacent development.⁵⁶ Visitors to the Ranch will have an opportunity to gain a better understanding standing and appreciation of the site if there are programs in the area of natural history interpretation. Along with an increased educational awareness of why this site is unique, the suggested program will help to accommodate those visitors who are not inclined to wait for a house tour, or whose interests lie in learning about the natural features of the site.

(3) Express to the visitor the dynamic environment in which ranchers co-existed with nature, and their attempts to manipulate it, as well as adapt to it.

Second level objective: Show visitors the ways ranchers have attempted to modify their environment to suit their specific needs.

Natural history interpretation will allow visitors to view the environmental manipulations first hand. By providing some sort of walking tour or trail, a clearer picture of man's utilitarian nature expressed in the ranch environment can be observed. Distant from the main cluster of ranch buildings are irrigation ditches, fences, bridges, hay meadows in various stages of production, animals and plants introduced to the valley, and a riparian zone suffering from the effects of mining waste contamination. A beaver colony provides an excellent example of the earliest flood irrigators. These interesting and important aspects of the site would be overlooked unless visitors can be encouraged to explore less travelled portions of the Ranch.

(4) Promote the importance of land protection to Grant-Kohrs Ranch through interpretation and underscore the need for popular support.

The interpretive setting provides a suitable vehicle for the expression of park management concerns. Grant-Kohrs management has stated that land protection is vital to the site's integrity and character.⁵⁷ The NPS Cultural

Landscape Analysis also found protection of lands adjacent to the site to be a significant concern.⁵⁹

Second level objective: Express to visitors that all parks exist within man-made boundaries, not "natural" boundaries and are susceptible to external influences.

The Ranch exists within the boundary of the nation's largest EPA Superfund site.⁶⁰ Montana's Governor Ted Schwinden recently revived a \$50 million dollar lawsuit against the Anaconda Company (now a division of the Atlantic Richfield Company, ARCO) for damages inflicted throughout the Clark Fork River Basin.⁶⁰ The river contamination is a result of decades of upstream mining and smelting activities. Legal and technical problems will exist for years to come, and the recreation potential of the river has largely been sacrificed to the interests of the extractive industry.

An important aspect of any interpretive program is its potential to help people make connections and associations in their minds about natural and human ecosystems. If land protection and river contamination are vital concerns of park managers then it is also vital to gain public understanding and support. Developing that support for the parks and their activities is a major responsibility of park managers.⁶¹

A recent study on people's perceptions about environmental problems showed that a positive correlation exists between knowledge of a subject area and feelings

about the ability to control or effect change in that same area. "If environmental education is to be effective, it must not only teach people about environmental problems and solutions, it must also help convince people that their behavior can have a genuine impact in an expected and desired direction."⁶²

If an objective of interpretation is education, and this education is to be meaningful, it must go beyond a mere conveyance of facts, to broader implications of those facts and how they affect the quality of our national parks and our lives. The dramatic illustration of abstract concepts (cumulative effects, subdivision and continual adjacent development, side effects of river pollution) can provide significant impact to a visitor experience. Through interpretation, critical resource issues can be presented as an integral part of the visitor experience as well as provide historical perspective.

Grant-Kohrs Ranch was dedicated to the public as a representative site.⁶³ It depicts a period in history which is now over, therefore, it has significant value only if it is protected from external threats.⁶⁴

(5) Help the visitor to understand how different periods of ranching involved the introduction of exotic species to the environment.

Throughout different periods of ranching in the West, and simultaneous development of an agricultural base in Montana, it is important to recognize that exotics (non-

native plants and animals) were introduced. The most obvious non-native animal introduced was cattle, as well as many types of plant species.

Second level objective: Today, different plant and animal communities dominate the site than those found during the early days of the frontier era.

Various types of hay species were introduced as the open range was depleted of native grasses, fenced, and eventually closed. Hay meadows were fenced off and high production was important in providing feed for winter. These exotic species were superior in many ways, yet required large amounts of water to survive and produce a high yield crop. Their introduction forever changed the nature of ranching.

Although noxious weeds were not considered much of a problem in the Deer Lodge Valley until 1980, they are now considered one of the most serious threats to ranching and agricultural production.⁶⁵ At Grant-Kohrs Ranch they are rapidly invading many disturbed areas, and will eventually dominate the unproductive portions of the site.⁶⁶ The introduction of species such as Spotted knapweed create serious long term problems for park managers in preserving plant diversity at the site. A natural history interpretive program should emphasize the importance of diversity, and the problems associated with invader species.

(6) Present basic ecological principles within a framework of historical perspective to promote a more

complete understanding of frontier life.

Second level objective: Express to visitors the interrelatedness of parts of an ecosystem.

Grant-Kohrs Ranch lies within a diverse geographic area which includes fertile valleys, a river system and its tributaries, high dry benchlands, and mountain ranges. Ecological principles such as diversity, competition, and succession are evidenced in micro-environments just as the hydrologic cycle and geological processes are apparent in observations of the total geographic area of the Deer Lodge Valley.

These principles and processes over time have created a total ecosystem which provided the land base that is vital to the character of the Western frontier. Grant-Kohrs Ranch, unlike many historic sites, does not commemorate or memorialize an individual or event. Instead, it commemorates a period of American history in which the lands resources were essential to the nature and distinction of the era.

Interpretation and visitor programs at the site can help to bridge the gap which now exists between historical periods and natural processes. This education will help to inspire in visitors a greater sensitivity toward the unique environment of Grant-Kohrs Ranch. Natural history interpretation would further serve to promote the use of the site as an outdoor classroom particularly suited to school groups and environmentally oriented public interest groups.

GRKO has the potential to offer its visitors a broader perspective and a more memorable park experience through interpretation of its natural resources, natural history, and the environmental issues relevant to the site's mission.

Throughout the history of the cattle era, ranchers have dealt with the natural environment first hand as business men, conservationists, and legislators. Each phase in their long history presented new conflicts, new methods, and required an ever-increasing understanding of the processes of the natural world. The resources previously mentioned could all be worthy additions to the current interpretive approach at GRKO, as their addition may help park managers to better address the interests of a broad and diverse clientele. The "experience" of GRKO is undoubtedly tied to our fascination with both the realities and romantic images of Western frontier life. Interpreters should put the built environment into proper context and not ignore the physical and biological processes that shaped the frontier and the range cattle industry.

Phase II - Inventory

This phase of interpretive planning requires that the planner seek out information about the resources of the site for which the plan is being prepared. Resources with interpretive potential (including natural resources and those altered by humans) are identified. This identification provides basic information from which decisions can be made for their incorporation into visitor

services and programs. In a park where interpretation has not yet been implemented, this process would require the establishment of baseline data through detailed inventory by an interdisciplinary management team of specialists.

In the case of GRKO, several historical resource studies have been conducted, and provide the basis for cultural interpretation programs. However, natural resource studies have not been used to provide interpretive material.

Two recent scientific studies have been completed at GRKO covering the vegetative and wildlife communities at the site, and the toxic metals contamination problem in the riparian zone of the Clark Fork River. The baseline plant inventory and herbarium collection provide necessary information on species diversity, plant communities represented, forage values, and documents the existence of noxious weeds at the site. The toxic metal contamination study measures the severity and extent of metal contamination on soils and plants at GRKO. It confirms the topographic distribution of these contaminants and toxicity implications of heavy metals on flora and fauna. The GRKO administrative office in Deer Lodge is a federal depository for the Silver Bow Creek Superfund Site project documents. These public files provide up-to-date reports on all aspects of investigation, research, and on-going mitigation efforts.⁶⁷ The reports should provide interpreters with opportunities to stay informed on the status of monitoring and research efforts by federal and state agencies.

As part of the Inventory Phase of interpretive planning, I solicited input from various local, state, and regional groups whose interests lie in the areas of natural resources and their historical importance to Western history. These contacts were made by letter, in which the groups were informed of my research project and what kind of impact it could have on addressing current and historical issues pertinent to GRKO and the cattle ranching theme. Attached to the letter was a list of the objectives for the plan developed during the Determining of Objectives Phase. I suggested several issues that could be incorporated into interpretive programs and asked for their comments and suggestions. (Figure 7). Each group was asked to respond also with names of organizations that they knew of who may have an interest in the project.

In order to determine whom to contact, I checked area phone books and a list put out by the Montana Environmental Information Council on public interest groups in Montana. Several state agencies and private interest groups were also contacted, as well as local organizations. The range of special interests represented by these organizations was broad, and this "scoping" process helped in revealing those issues and resources that are critical to interpretation of the site, and meeting public needs. Several local natural resource specialists were also contacted and interviewed during this phase of planning, including a soils scientist, a Forest Service range manager, a County extension agent, a

Figure 7

CITIZEN INTEREST GROUPS CONTACTED

Nature Conservancy

Montana Promotion, Montana Department of Commerce

Montana Department of Fish, Wildlife and Parks

Montana Wildlife Federation

Audubon

Montana Historical Society

High Country News

Agricultural Preservation Association

Deer Lodge Valley Conservation District

Northern Plains Resource Council

Montana Environmental Information Center

Trout Unlimited

Montana Association of State Grazing Districts

Montana Stockgrowers Association

Clark Fork Coalition

Powell County Museum and Arts Foundattion

Glacier Natural History Association

Tri-County Historical Society

Deer Lodge Chamber of Commerce

Montana Tech

Weed Coordinator, Montana Department of Agriculture

Powell County Weed Board

Montana Department of Health and Environmental Sciences

local rancher, and a biology teacher. These individuals are knowledgeable of the area's resources and are also able to reflect some local sentiment.

In response to the 12-Point Plan policy directive to "expand the role and involvement of citizens and citizen groups at all levels in the National Park Service," I believe that by using input from public interest groups, the plan might better represent a cross-section of issues pertinent to the plans objectives. ⁶⁹ The existence of this directive from the NPS administration confirms the need for public involvement in Park Service activities, and reflects the political pressure that has been applied by public interest groups to consider public comment in planning activities.

In addition to state and local organizations, and professionals, I contacted seven National Historic Sites within the NPS system. These sites are small units whose primary or main themes are historic, yet, they also use sub-themes of natural history and natural resources in interpretive programs. Many of the Chief Interpreters from these units responded with information on their visitor services, natural history trails, themes and objectives, and visitor use statistics. From this information I was able to get an idea of what interpretive media were used and in what way. The NPS units contacted are shown in Figure 8.

The focus of this phase was on the natural resources that exist at GRKO which have interpretive potential to

Figure 8

NATIONAL PARK SERVICE UNITS CONTACTED

1. Natchez Trace Memorial Parkway, Tupelo, Mississippi
2. George Washington Carver National Monument, Diamond, Missouri
3. Lyndon B. Johnson National Historical Park, Johnson City, Texas
4. Colonial National Historical Park, Yorktown, Virginia
5. Homestead National Monument, Beatrice, Nebraska
6. Theodore Roosevelt National Park, Medora, North Dakota
7. Jefferson National Expansion Memorial National Historic Site, St. Louis, Missouri

underscore the open range cattle era theme. While accumulating comments and suggestions from groups and specialists, much time was spent at the site investigating in the field. Air photos and surveys were available at the NPS Administrative Office and the Powell County Courthouse.

At sites where interpretation has not yet been incorporated as a management concern or used as a visitor service, this phase would involve conducting a detailed inventory covering all aspects of the parks physical, biological, and cultural environment.⁶⁹ GRKO has adopted interpretation as its primary means of communicating the park's message to the public. The basis for the historical message is found in the Historic Resource Study, developed by the NPS specifically for GRKO in 1979.⁷⁰ This study provides the necessary historical data on which most of the ranger-guided tours are based.

Similarly, the scientific studies, completed in 1982 and 1983, provide baseline data relating to the natural resources of the site. A Cultural Landscape Analysis was completed in 1987 for GRKO by NPS personnel at the Rocky Mountain Regional Office and contains a detailed analysis of the importance of landform, landscape, and scenic values to the site's integrity.⁷¹

These documents provide an excellent base for natural resource interpretation. With this data already well documented, most of the inventory phase involved gathering local and regional input on issues important to the blending

of natural and cultural systems within the scope of the park's theme.

Phase III - Data Analysis

The analysis of existing baseline data and responses to the proposal by interest groups and specialists centered on the role of the environment in the open range cattle era. Examination of the responses revealed which aspects of the ranch environment are of most interest and concern to the public. With the main theme of the ranch well established by Congressional mandate, and the ranch complex of historic structures determined to be the park's chief resource, the role of natural history as a sub-theme is supportive of the park's mission.

During this phase the interpretive planner attempts to focus less on individual features and more on total systems or processes. With a holistic approach to the park's "story", the interpretive planner will consider all resources at the site (both cultural and natural) as primary source material, whereby the park visitor can better understand the historic, current, and future context in which the site exists.⁷²

Of critical importance to the public, as well as to GRKO staff, is the preservation of the historic scene. The expanse of open, undeveloped adjacent land, particularly to the Western boundary, is necessary to retain the site's integrity. References to this fact are made in all major GRKO and NPS administrative documents. The scene is

composed of high, upland foothills above the densely willowed banks of the Clark Fork River, with the snow covered Flint Creek Range rising over 10,000 feet to the West.

Responses to the contacts made during the Inventory Phase revealed that the most concern and interest is in the following areas:

- 1) scenic preservation
- 2) weed control
- 3) Clark Fork water quality
- 4) riparian zone management
- 5) historical importance of wildlife
- 6) expanded opportunities for exploration at the site
- 7) more dynamic programs for school groups, other than tours of buildings and structures

The most consistent responses, in both number and content, came from other NPS units. All were supportive of natural history interpretation at GRKO, and cited their own successes with its use at other historic sites.

Regional groups and organizations outside of the local Deer Lodge area also responded with comments and support. Understandably, each response reflected the group's organizational mission or primary theme. For example, the Montana Department of Fish, Wildlife and Parks expressed interest in the historical importance of wildlife and fisheries resources in the Deer Lodge Valley and provided technical information. The Montana Stockgrowers Association expressed concern about the lack of interpretation of the range as a resource, and the importance of weed control to ranching.

Surprisingly, none of the local public interest groups responded to the letter concerning this project. This suggests that there is a lack of community interest in the site, and also reflects the need for more positive and effective community outreach efforts by GRKO managers. In order to get local input, I sought out comments by contacting and interviewing representatives of local land management agencies and the public schools. All are supportive of natural history interpretation and additional programs at the site and offered suggestions and information.

Phase IV - Synthesis of Alternatives

Most interpretive plans are developed by the managing agency and involve identifying different courses of action which would meet stated objectives, and determining the implications of each action. The best alternative is one which will satisfy the interpretive objectives and meet both user and organizational needs.

Generally, an interpretive plan is written when the use of interpretive media has not yet been fully accepted as an important management function in an agency, and money has not yet been allocated nor personnel committed to its role in the organization. In that situation, each possible course of action (i.e. building a visitor center, acquiring additional land, designing wayside exhibit areas) including their advantages and disadvantages, is presented. Managers

are then better able to determine which action is most feasible and consistent with agency goals.

Because this project is not being conducted by the NPS, and the site involved already uses interpretation as a management tool, this plan will conclude with various recommended actions within rather confined parameters, instead of providing an array of widely differing alternatives. The information gathered during the inventory and data analysis phases confirmed the need for some new site programs to include natural history interpretation at GRKO.

The lack of space in the existing visitor center at the site precludes the use of exhibits, audio visual media, herbarium specimen displays and other illustrative media. Therefore, the programs and services will be based on first hand interpretive experiences, which, according to Freeman Tilden, "aim to reveal meanings and relationships...rather than simply to communicate factual information."²³

Walking trails, or interpretive trails, provide visitors with solitude, a chance for physical exercise, a leisurely pace if their schedule allows it, and an opportunity to observe first hand the resources of the site. Self-guiding trails do not require tour scheduling and the consistent availability of uniformed rangers to conduct tours. Once the trails, entrance signs, and trail leaflets are in place at the site, little is required on a daily basis to provide continual service to visitors. The

possible use of existing service roads at GRKO as interpretive trails translates into very low start-up and maintenance costs for the agency. Self-guiding trails will provide the foundation for natural history interpretation at GRKO. Their use will be discussed further in the final section of this paper.

SECTION II

THE PLAN

This plan will cover three main areas which support the rationale for its inclusion into existing GRKO planning documents. 1) Visitor Services, 2) Site Specific Research, 3) Opportunities for Community Use and Support. These three areas, along with the Recommendations section, provide the bulk of the plan itself.

Additionally, this plan has a direct relationship to two previously written NPS documents and it addresses the needs expressed by them. The Cultural Landscape Analysis and the Land Protection Plan will be referenced throughout this section.

1) Visitor Services and Orientation

Park visitors have their first contact with park personnel in the visitor center at GRKO, located near the parking lot. Nearly all visitors begin their park experience through orientation at the visitor center. This is an appropriate time to inform visitors of available site opportunities.

A new park brochure should be designed delineating the whole site and its various zones, including new trails and prominent features of the natural environment. Copies of self-guiding trail leaflets and seasonal site bulletins should be made available for purchase at the visitor center.

In addition, these brochures should also be made available at each trail entrance. Generally, the cost of such leaflets is low, usually 25 cents, and visitors have the option of returning the leaflet after use (at a leaflet disposal box) making the trail free for individuals and groups.⁷⁴

Several GRKO personnel expressed the feeling that most visitors care only to tour the ranch house, and are not interested in other aspects of the site's resources. At the present time, there is not much else offered to visitors on a regular basis, and orientation at the visitor center tends to disregard mention of existing access to areas removed from the lower ranch yard.⁷⁵ Discussions with 1988 seasonal rangers revealed that visitor orientation focuses on guided house tours and a self-guided tour of ranch buildings. Other opportunities are not presented.

A. Natural History Trail (Self-Guided)

Self-guided activities are a beneficial choice of interpretive media for national parks. Visitors are able to come into direct contact with the resource at the visitors convenience, and a trail is particularly suitable for families or small groups.⁷⁶ As a supplement to existing ranger-guided tours, the media mix of guided and self-guided activities meet the needs of a diverse clientele. At GRKO, a self-guided trail is a good beginning to a natural history program. The gravelled main service road

which "begins" and "ends" at the main ranch building complex provides approximately one mile of walking trail since it is used only occasionally by ranch vehicles. The GRKO General Management Plan states, "Little or no conflict between use of the ranch roads for maintenance operations and visitor programs will occur because the roads receive very light travel. When ranch vehicles are on the roads their speed will be limited to 5 miles per hour."⁷⁷ In addition to this existing loop is a short (less than 1 mile) spur road, also gravelled, which crosses the Clark Fork River and winds to within several hundred yards of the oxbow lake near the park's old southern boundary. Figure 9 delineates these existing roads at the site, and lists historic structures.

Although these routes are open to the public during regular park hours, they are rarely used by park visitors. This is due to several conditions. Visitors are not oriented at the visitor center toward this aspect of the site, and are generally not aware that this road is suitable for walking, and eventually loops back to the main ranch complex. The site brochure currently used does not show this road or other less developed areas of the park as available for exploration. The existence of this access road provides an excellent opportunity for GRKO managers to use it as a basis for a self-guiding trail.

GRKO visitor use analysis shows that the average length of stay at the site is 1.3 hours.⁷⁸ Given the length of this existing trail, and the average length of stay, these

- ROAD
- RAILROAD
- STREAM
- FOLIAGE
- DRY CREEK BED
- POWER POLE
- NON-EXTANT STRUCTURES
- FENCE:
 - PICKET
 - DOUBLE POLE
 - POLE
 - JACK LEGS
 - BARBED WIRE

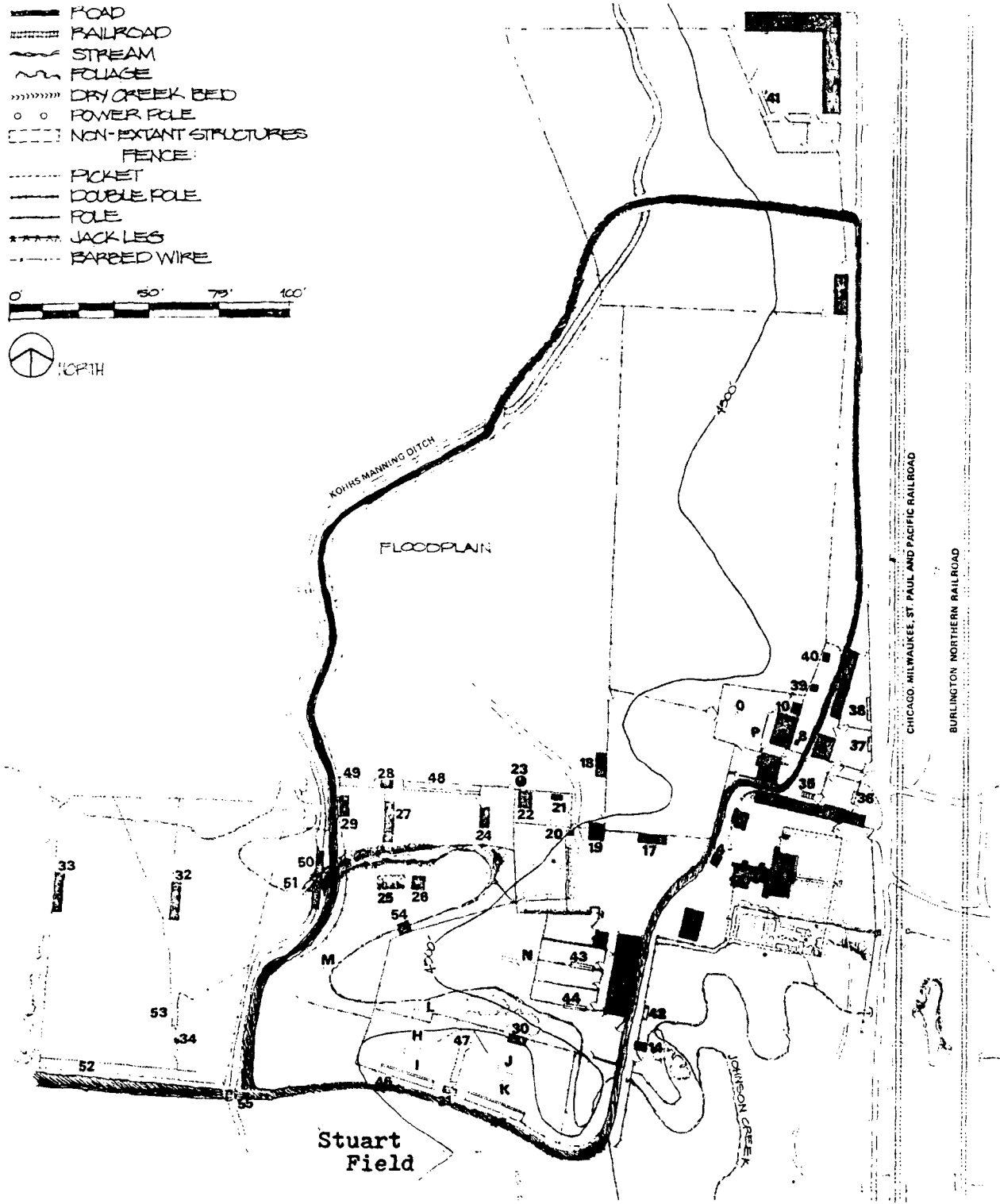
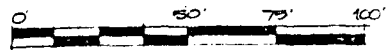


Figure 9. HISTORIC BASE MAP
 GRANT-KOHR'S RANCH NATIONAL HISTORIC SITE
 UNITED STATES DEPARTMENT OF THE INTERIOR/NATIONAL PARK SERVICE

Note: See following list for numbered structures shown on this map. Letters H-P refer to non-extant structures.

421 20013P
 DEC 10 2007

The following information is from the 1980 Grant-Kohrs Ranch National Historic Site General Management Plan.

NUMBERED HISTORIC STRUCTURES

Grant-Kohrs Ranch National Historic Site

<u>Historic Structure/ Building Number</u>	<u>Materials</u>	<u>Builder</u>	<u>Dates</u>
1 - Ranchhouse	Log Frame/Brick	Grant Kohrs Warren	Built 1862 Addition 1889 Maintenance 1940
2 - Bunkhouse Row	Log Frame	Grant Kohrs Kohrs Warren	Begun circa 1860 Additions 1860's to 1890's Shortened 1907 Altered 1933
3 - Garage/Blacksmith Shop	Frame	Warren	Built 1935
4 - Coal Shed	Frame	Kohrs	Built 1912
5 - Ice House	Log Frame Frame	Kohrs Kohrs Kohrs	Built circa 1870 Additions 1880's Replace addition 1912
6 - Granary/Roller Mill	Frame	Warren Warren	Altered 1935 Built 1935
7 - Draft Horse Barn	Log/Frame	Kohrs	Built circa 1870
8 - Privy (Roosevelt Building)	Frame	Warren	Built 1934
9 - Dairy	Frame	Warren NPS	Built 1932 Altered 1975
10 - Oxen Barn	Log	Kohrs	Built circa 1870
11 - Horse Barn (Bielenberg Barn)	Log	Bielenberg	Built circa 1880
12 - Machine Shed	Frame	Kohrs	Built circa 1890 Moved 1907
13 - Cow Shed	Frame	Kohrs	Built 1907
14 - Stallion Barn	Log	Kohrs	Built circa 1885
15 - Thoroughbred Barn	Frame	Kohrs Warren Warren NPS	Built circa 1885 Maintenance 1941 Addition 1954 Altered 1976
16 - Stallion Barn (Leeds-Lion)	Log	Kohrs	Built circa 1885
17 - Buggy Shed	Frame	Kohrs Kohrs	Built circa 1875 Moved 1907
18 - Granary	Frame	Kohrs	Built circa 1890

19 - Stallion Barn	Log/Frame	Kohrs Kohrs	Built circa 1880 Addition circa 1890 Altered circa 1928
20 - Privy	Frame	Kohrs	Built circa 1900
21 - Brooding House	Frame	Warren	Built 1935
22 - Chicken House	Frame	Warren	Built 1935
23 - Granary	Metal	Kohrs Warren	Built 1910 Moved 1935
24 - Stock Shelter	Frame	Warren	Built 1933
25 - Stock Shelter/7 possible haystacks	Frame	Warren	Built 1934
26 - Hay Storage	Frame	Warren	Built 1934
27 - Stock Shelter	Frame	Warren	Built 1933
28 - Feed Storage House	Frame	Warren	Built 1933
29 - Stock Shelter	Frame	Warren	Built 1933
30 - Stallion Barn	Frame	Kohrs	Built circa 1880
31 - Feed Storage House	Frame	Warren	Built 1932
32 - Stock Shelter	Frame	Warren	Built 1934
33 - Stock Shelter	Frame	Warren	Built 1932
34 - Storage Shed	Frame	Warren	Built circa 1930 Moved 1934
35 - Cattle Scale	Frame	Warren	Built 1935
36 - Feed Rack	Pole	Warren	Built circa 1930
37 - Feed Rack	Pole		Built 1907
38 - Feed Rack	Pole		Built 1907
39 - Manure Pit	Concrete	Warren	Built 1932
40 - Beef Hoist	Pole	Kohrs	Built circa 1870
41 - Squeeze Chute	Frame	Warren	Built circa 1930
42 - Feed Rack	Pole		Built circa 1900
43 - Feed Rack	Pole	Warren	Built circa 1940
44 - Feed Rack	Pole	Warren	Built circa 1940
45 - Feed Bunker	Frame/Pipe	Warren	Built 1932
46 - Feed Bunker	Frame/Pipe	Warren	Built 1932
47 - Squeeze Chute	Frame	Warren	Built 1933
48 - Feed Bunker	Frame	Warren	Built 1933
49 - Feed Bunker	Frame	Warren	Built 1933
50 - Flume, Active	Frame	Kohrs-Manning	Built 1947
51 - Flume, Inactive	Frame	Kohrs-Manning NPS	Built 1947 Demolished 1976
52 - Feed Bunker	Frame/Pipe	Warren	Built 1932
53 - Squeeze Chute	Frame	Warren	Built 1934
54 - Bridge	Frame	Warren NPS	Built circa 1930 Demolished 1976
55 - Bridge	Frame	Warren	Built circa 1930

conditions are quite compatible. Visitor use analysis also shows the 26 percent of the visitors are non-program users, meaning that they do not take the ranger-guided house tour currently offered at the site.⁷⁹ This 26 percent are potential users of a walking tour, as often in the summer months house tours fill up quickly (only 12 persons are allowed on the house tours, and 2 tours are given each hour during the summer), and people are not willing to wait 1-2 hours to sign up for a later tour. A walking trail would appeal to all age groups, families, and individuals, as it can be done at one's leisure, at whatever pace is appropriate and desirable given such factors as weather conditions and individual schedules for length of stay.

There are several options in selecting the method of interpretation for a self-guided trail. They are: 1) leaflet and marker, 2) sign in place, 3) audio trail (talking labels), and 4) audio trail (portable cassettes).⁸⁰ After discussing the options with GRKO personnel, the leaflet and marker method seemed to have the most appeal. This method generally is associated with low initial cost, a low level of aesthetic intrusion, and a low level of maintenance required.⁸¹

The leaflet should be designed, written, and illustrated to convey the overall theme of the trail and enhance the visitor's appreciation of it. Usually letters or numbers are used to identify the individual stations and the accompanying leaflet has informative paragraphs and

illustrations corresponding to the markers. At GRKO, the trail leaflet would contain information concerning the physical environment of the site, relating it to the historical background of the cattle ranching theme.

Managers may want to consider the construction of an "entrance" sign for the trail. The trail name, length, walking time, and possibly a schematic drawing of the trail would convey to users basic information about the trail, and mark its beginning. The structure also could incorporate the leaflet dispersal box, giving instructions for leaflet use.

The existing service road which forms a one mile loop through the Ranch complex passes through several pastures, crosses irrigation ditches, and winds near the East bank of the Clark Fork River and riparian zone. To determine the location of marked stations where visitors will stop and read from the leaflet, GRKO staff should consult not only with each other, but with local specialists as well. The division heads may want to develop the stations as a team effort whereby each participant is able to observe along the service road those aspects of the physical and natural environment that have interpretive potential.

An alternative to this method of determining station locations, is to use a group of non-NPS specialists in a similar manner. A local Deer Lodge resident suggested this procedure during my inventory phase. An example of a possible team might include; a soil scientist, a biologist,

a range forester, a rancher, a wildlife conservationist, and a county extension agent. As a group, this mix of local professionals could walk the road or trail, along with several experienced GRKO interpreters, and point out what features are noteworthy and interesting. More than likely, each will draw upon their acquired body of knowledge and experience. If new ground were to be broken for a trail, it would be particularly important that the general area of station locations be determined before a new footpath or trail was actually designed, as then the most important and unique features would be sure to be included in the trail layout.

The one-quarter mile spur road mentioned earlier and shown on Figure 9, should be made available for visitor use and included in the self-guided program as an optional walking trail. This spur is accessed by the main loop trail (service road) at the Northwest corner of Stuart Field.

The main trail's emphasis will be directly supportive of the cattle ranching theme, enabling staff to develop short, interpretive paragraphs on irrigation, pasture use, winter feeding, hay production, the interaction of hay production and use of natural range, breeding, weed control, types of fencing, diversion structures, and other related topics.

The spur road heading west off the main loop crosses a slough and the Clark Fork River, and winds through a small pasture ending near the oxbow lake. This trail could be

used to interpret pond ecology, the importance of beavers, migratory waterfowl, native vs. exotic plant species, succession, competition, geology of the Deer Lodge Valley, glaciation, and metals contamination.

During some periods, such as early spring, the area near the lake is quite muddy and may pose a problem for visitors. In order to prevent site degradation, this natural history trail option would have to be limited to periods of appropriate seasonal use. GRKO staff could consider the use of a narrow boardwalk near the lake to channel use and protect the marsh communities. This development would not only encourage safe, non-degrading use, but could ultimately allow the lake area to be incorporated into special conducted group activities and programs.

Interpretive trails and walks make up the foundation on which many park experiences are based. The NPS Regional and Washington Offices encourage their use "as a means of providing controlled access into interesting park environments for purposes of appreciation and understanding of park values."²²

B. River Walk (Self-Guided)

The Clark Fork River is a prominent natural resource of the site. Easy access is provided by the service road shown in Figure 9. A maintained trail along the River could proceed from the service road to the northern park boundary,

and should be considered by GRKO staff as having important educational and interpretive value. At the present time, access to the River bank and adjacent areas is blocked by NPS fencing, which discourages use. These areas should be opened up and a river trail constructed. This trail would act as access for local fishermen, birdwatchers, and community residents interested in plant and animal life in the riparian zone. It would also provide river access to those visitors interested in observing the slickens areas unique to the Clark Fork. The trail design and layout should be developed by GRKO staff. Seasonal YCC crews could supply the labor necessary to construct the trail under the direction of the Maintenance Division, and should be capable of completing the project in less than one season.

During winter months with reasonable snowfall and other off-season periods, this additional trail would furnish community residents with opportunities for walking, cross country skiing, solitude, and exploration. An entrance sign would help orient visitors to the Superfund Area and its unique character, and to the recreational value as well.

The types of interpretive trails suggested in A and B above have been used successfully in other NPS historic sites and monuments. In each case, the natural history interpretive programs help to tell the historic site's story, displaying its character to the visiting public. Park managers at these sites have found them to be extremely popular. Examples are shown in Figure 10.

PARK NAME -----	VISITATION --(1987)--	THEME -----	TRAILS -----	LENGTH -----	RELATED PROGRAMS OFFERED -----
Natchez Trace Parkway	48,351	History & establishment of the old Natchez Trace as a main transportation route for settlers and Indians going westward.	18 trails, of which 14 are related to the natural environment.	700 feet to 4.6 miles	-story of an abandoned beaver dam -plants used as food by Indians and settlers -a slough's effect on vegetation -plant succession -natural history and the economic value of a hardwood forest -plant identification
George Washington Carver National Monument	120,544	Carver's boyhood home. The areas flora and fauna.	1 nature trail. 100 acres of restored prairie.	.68 miles	-flora and fauna of prairie -role of fire in nature -effects of pollution -biological diversity -agricultural practices -edible and medical plants -bird walks, wildflower walks -pond study, prairie ecology -nature photography -owl and hawk program
Homestead Nat'l Monument	42,600	Westward emigration Homestead act Pioneer life Prairie environment	Self-guiding trail with interpretation. Printed trail guide. Trailhead audio tape.	1 mile	-Prairie Appreciation Week -Homestead Days -native prairie plants & animals -Xmas on the homestead -living history -restored tallgrass prairie
Lyndon B. Johnson Nat'l Historic Park	310,000	Texas Hill Country and its influence on the life of Pres. Johnson	Self-guiding interpretive trail with natural history pamphlet	1 mile	-land management talks related to ranch life -man's influence on the hill county environment -wildflower and natural history walks -research and demonstration plots of wildflowers

Figure 10. Chart comparing other National Park Service unit programs relating to natural and cultural history.

All of these historic sites have made an effort to convey to visitors the role that unique natural environments have played in our varied national culture. Special programs occur often throughout the year, most sites offering daily programs in addition to the minimum interpretive schedule.

At George Washington Carver National Monument all rangers address environmental issues to visitors. Homestead National Monument provides a mixture and balance of cultural and natural history interpretation. Their conducted nature programs have proven to be extremely popular with school groups. Park personnel at Lyndon B. Johnson National Historic Park began doing a series of natural history programs several years ago, and developed a short, self-guiding trail and brochure system. These services began on an experimental basis and support and interest grew. Staff at the site claim that these additions have helped to increase visitation and have also promoted interest in other scientific research at the site. A recently completed visitor preference survey, conducted by researchers at Texas A & M University and supported by the NPS, has helped the staff at the park to understand who their visitors are, and in planning for future interpretive programs and services.⁸³

Each of these four NPS units has developed programs which enhance first time visitor park experiences as well as those of repeat visitors. Staff members at these sites utilize the talents, interests and special knowledge of all

employees to create the most rewarding visitor experience possible, and to foster positive community relationships in nearby population centers. Natural history interpretive programs at historic sites are considered vital and critical to each sites mission and goals. Many of the same types of programs would be possible at GRKO. The development of trail guides for the existing trail, and establishment of new walking trails should be considered.

2) Native Prairie Relict Parcel and Site Specific Research Project

References are often made to the existence of a "relatively intact" parcel of native range adjacent to the present boundary of GRKO. Documentation of this parcel's importance can be found in scientific research reports, the NPS Cultural Landscape Analysis, and the GRKO Land Protection Plan.^{84,85,86,87}

This parcel is presently owned by Burlington Northern Co., and lies directly east of the railroad tracks which form part of the current GRKO boundary.⁸⁸ It is approximately 28 acres in size, and is characterized as a dry, benchland site. "This grassland is dominated by native wheatgrasses and semiarid land forbs."⁸⁹ Earlier references to this parcel in the above-mentioned NPS documents are now somewhat outdated in terms of the extent of encroachment by the weedy species spotted knapweed. Its presence has become more widespread than was suggested in the 1984 Rice and Ray

study.⁷⁰

There are several reasons why this native mixed grass prairie relict is important to the site.

a) It is the only relatively intact piece of native prairie adjacent to the Ranch. All of the NPS acreage at the site has either been cultivated, grazed, or otherwise disturbed.

b) Range grasses native to the West such as bluebunch wheatgrass (Agropyron spicatum), needle-and-thread (Stipa comata), western wheatgrass (Agropyron smithii), indian ricegrass (Oryzopsis hymenoides), and native forbs such as moss phlox (Phlox muscodides), long-leaf phlox (Phlox longifolia), upland larkspur (Delphinium nuttallianum), woolypod milkvetch (Astragalus purshii), bitterroot (Lewisia rediviva), and prickly pear cactus (Opuntia polyacantha), are all represented creating "a valuable living, historical resource".⁷¹

c) These open range forage species supported the expansion of the cattle industry and played a prominent role in the success of cattlemen such as Conrad Kohrs.

d) It exists in contrast to the exotic dominated vegetation communities covering the intensely managed or impacted areas of the Ranch.⁷²

e) As knapweed has infested the parcel, and is a prolific spreader, the native quality of the site over time will be reduced, and its potential for interpretive use will be lost.

Early on in the research stage of this project, Burlington Northern Railroad Co. was contacted regarding the status of this parcel and its importance to GRKO. Several contacts were made by various department heads and eventually it was determined that this parcel is the responsibility of Glacier Park Co., a subsidiary of Burlington Northern. After discussions with the Land Manager, it became apparent that many options are readily available to GRKO in acquiring this land. I would highly recommend that any one of them be pursued until the parcel is obtained by the NPS.

Discussions and field investigations with a soil scientist at the Soil Conservation Service in Deer Lodge revealed that this parcel could be improved in range quality by the eradication of the knapweed now rapidly invading the site. Although prevention is the best control, once this weed has established itself, other grasses and forbs will be reduced in number and more effective methods of control should be investigated.

Herbicides are an effective means of control on relatively small areas, where the soils and site location are compatible with herbicide restrictions. Tordon 22K (picloram) is the best chemical control for both diffuse and spotted knapweed, and one application can control these weeds for a period of three to four years.

Vicki Watson and Peter Rice, of the University of Montana, completed a study in 1986 on Tordon 22K (picloram)

designed to determine the retention of picloram in soil and vegetation, the loss of picloram caused by sun degradation and runoff, and picloram's potential to contaminate surface and ground water.⁹⁴ Their results determined that with an application of one quarter pound per acre of picloram or less, residual concentrations of the chemical are well below levels that affect human health or the rest of the environment.

Control of exotic plant species in a National Park is addressed in the Management Policies Handbook for the NPS. Manipulation of exotic plants is acceptable when those plants "disrupt the faithful presentation of the historic scene," or are "threatening the perpetuation of natural features, native species, natural ecological communities, or natural ecological processes."⁹⁵ Development of a control plan of action would be necessary, allowing for public review and comment.

According to the Soil Conservation Service, use of Tordon is common on ranchland in the Deer Lodge Valley, and many ranchers have successfully controlled the spread of knapweed, or have eradicated it in small areas. The prairie relict area at GRKO is an excellent research site due to its soils, distance from the Clark Fork River, low ground water level and the existence of native grasses which are not affected by Tordon. Broadcast spraying is recommended, in early June, during a period of high humidity.⁹⁶

With a 1 pint per acre application rate, one gallon of

Tordon would cover approximately 8 acres. The application of 3 and one half gallons (at \$90.95/gallon) would cost \$318.32 for a 28 acre unit, or \$3.80/acre/year.⁹⁷ Other chemicals are also available and effort should be made to research what options are suitable for the specific conditions of the site. Clopyralid is also effective on knapweed and should be researched due to its more selective nature. It is highly recommended that GRKO staff consider some type of control plan for knapweed. Valuable native species in a mixed grass prairie community will otherwise be lost, and future interpretive potential gone.

Site specific research and monitoring is an important function in managing National Parks. Much has been written, and debate generated, over the lack of such research done by the NPS.^{98,99,100} By developing a knapweed control plan, and using the above-mentioned parcel for research purposes, data can be generated by GRKO staff which will be useful in making future management decisions affecting the resources of the entire site. Close attention to application methods and procedures when using Tordon is important, and a commitment to monitor the results on a regular schedule must be made. The Soil Conservation Service and the Deer Lodge Ranger District of the U.S. Forest Service should be consulted for technical advice on a spray program, as they are knowledgeable and experienced in chemical use and application for rangeland managers. Experts in weed science and herbicide use, such as Dr. Pete Fay at Montana State

University should be consulted as well, and should be considered vital to the success and integrity of any weed program on public lands such as the National Parks.

If this native prairie grassland parcel is able to be restored by controlling knapweed, then it will have potential to be incorporated into the GRKO interpretive plan for visitor programs. It is an important natural and historic resource that is vital in conveying the park's theme, and should not be allowed to degrade further.

3) Opportunities for Community Use and Support

A natural history interpretive program at GRKO should include more than several self-guiding trail options. As the entire site becomes more accessible to visitors, opportunities for off-season activities will present themselves. Community groups should be encouraged to use park resources creatively during the off-season, when most park units are experiencing lower visitation. Many organizations, including schools, would benefit from a series of seasonal programs which focus on the natural environment. Unlike structures and buildings, nature is dynamic and presents more challenges and diversity over time for local and repeat visitors. Many examples of conducted activities at sites similar to GRKO are included in the Visitor Services section. GRKO has great potential to develop its own programs unique to this site and the local community.

Distribution of park leaflets and brochures on the natural history self-guiding trail loops to schools and other organizations will help school teachers and group leaders to become familiar with "what's new" at GRKO and would aid in pre-trip orientation and training. This effort will also enable the park to "get the word out" about additional seasonal conducted programs that would have educational value for school groups.

Local communities are an important, but often overlooked, human resource for National Parks. Unlike most visitors to the parks, their support can be continuous throughout the year. Dedication to effective outreach programs will ensure working relationships that are productive and beneficial to both the park and the communities they serve.

RECOMMENDATIONS

GRKO should develop strategies to plan for the future by examining the direction the park is headed. Is it a static site? Where do opportunities lie for growth and change? Are we offering the best possible visitor experiences to a diverse clientele? Are we striving for excellence or security in the familiar? The natural history interpretation which this plan develops, should be considered a starting point from which park personnel can begin to mesh new visitor services into the existing interpretive services plan. New programs and projects will add significantly to the experiences possible at the Ranch, for both visitors and staff.

An overview of recommendations include the following:

I. Interpretive Resources

A. Self-guided nature trails (emphasizing natural history) with several spur options.

- 1) Ranch service road loop (one mile) with marked stations and accompanying trail leaflet.

Intended Use: General public, all ages, school groups.

Purpose: Utilize the existing site resources to greater potential. Broader spectrum of ranching topics conveyed to public, other than lower yard structures. Balance the importance of

both natural and cultural resources to the sites integrity.

- 2) Oxbow lake spur trail with possible construction of boardwalk, construction of entrance sign, special river and lake interpretive leaflet.

Intended use: General public, school and/or other groups for purposes of environmental education, natural history, flora and fauna of Ranch site, outdoor photography experiences, birdwatching.

Purpose: To encourage thoughtful and appropriate use, and to aid in the channeling of visitor use patterns to decrease potential for site degradation. Provide year-round opportunities for exploration.

- 3) River trail. Construction of a new trail running in a generally N/S direction along the Clark Fork River. Approximately one half to one mile of trail, either a loop or an out-and-back.

Intended Use: General public, all ages. Recreational use for local fishermen, families, groups, and park personnel for purposes of research and monitoring of

Superfund area.

Purpose: To channel existing and future use to safe areas, and away from sensitive or unsafe areas. Encourage recreational use.

Develop individual trail leaflet about the River and the Superfund Site, to include topics such as toxic metals contamination, adaptation by plant communities, existence of dead stems, slickens areas, wildlife use, relationship between mans use and misuse of his environment, conflicts between ranching and mining.

B. Use of prairie relict parcel.

- 1) Acquire by donation, lease, or direct sale from Burlington Northern Company, or ask the company to sponsor the weed research effort.
- 2) Determine the potential impact of using herbicides, or other means, to reduce knapweed.
- 3) Conduct site research using Tordon 22K or other effective herbicide, to attempt a return to native bunchgrass community.
- 4) Begin to use the parcel as a study area. Staff monitoring of test plots, recording

of data, range site analysis. Request the specialized information from appropriate sources necessary to conduct site specific research. Document the spread of native species once knapweed is controlled.

- 5) Develop a weed control action plan for the entire site, based upon results of research and experimentation.
- 6) Weed information should be available for visitors at the Visitor Center. Public education should be a high priority, as people and their activities have greatly increased the spread of noxious weeds in Montana. Weeds are impairing, or diminishing in quality, the historic scene at GRKO. The cumulative effects of small, incremental changes over time will seriously degrade the site quality.
- 7) This research should be incorporated into interpretive activities of the future. The GRKO prairie relict parcel represents the only opportunity to interpret the native range grasses and their importance in the open range cattle industry through first hand visitor experiences.

C. Wayside exhibits and deterioration of environment along the paved trail leading from the Visitor

Center to the ranch house. Subject matter of existing signs cover three areas: the hard winter of 1886-87, the environment, and grass. The exhibit sign on grasses faces a disturbed site which is being invaded by knapweed.

- 1) Staff should maintain this area in the native grasses which supported the open range cattle industry. The General Management Plan states that "A small portion of the visitor contact site east of the railroad tracks will be replanted with the native grasses that existed before the influence of open range cattle grazing."¹⁰¹ These plantings may have been done in 1977 at a minimal level (several plants were introduced). Staff are not sure who planted them, what species were planted or where and to what extent, and no monitoring of their spread or decline has been documented.
- 2) Park staff should be monitoring these environmental changes at the site.

Because monitoring is not done, control data is lost, and many documents generated in-house lack up to date information. Assembling of baseline data and regular monitoring is necessary

to detect or predict changes that may require intervention, and to provide reference points for comparison with other micro-environments.¹⁰²

II. Personnel Implications

Personnel adjustments will not be necessary for the most part, to implement the changes suggested in this plan. If a River Walk trail is added and a boardwalk built near the oxbow lake area, a larger YCC crew may be required to handle the manual labor necessary to complete these projects. The use of Volunteers in the Parks (VIP's) should also be pursued. For the 1988 season, six seasonal interpretive rangers have been hired. With the addition of several new self-guiding trails, each with a natural history focus, it will be important in the future to require that one or two of these six seasonals have a background or education in the natural sciences.

III. Evaluation after Implementation

Evaluating the success of interpretive programs is difficult. Broad, immeasurable objectives do not lend themselves to the use of completion reports to document accomplishments like those used by other divisions. What each visitor gains from a park experience is as unique as it is personal. Park Service documents and texts address the problem of

interpretive program evaluation and, in the attempt to break each objective down into concrete and measurable goals, lose sight of the importance of personal discovery and satisfaction.¹⁰³

Joe Sax has written about the National Parks and the importance of invoking the contemplative faculty by encouraging visitors to set their own agenda, in contrast to very controlled, scheduled and guided park experiences. Sax writes, "The setting of the National Park provides an opportunity for respite, contrast, contemplation, and affirmation of values for those who live most of their lives in the workaday world."¹⁰⁴ Rather than attempting to measure the success of new programs by testing through any mechanical or other similar means, GRKO should establish a method to document visitor feedback. By learning more about the program user and their perceptions, GRKO managers can make informed judgements about user needs while helping to create the best possible park experience. Much can be learned from a voluntary visitor survey questionnaire concerning peoples impressions of their Ranch experience, which programs were most enjoyable and why, and whether or not they plan to repeat their visit in the future. Surveys such as these are helpful in determining program priorities, necessary changes, and in planning for the sites

future interpretive needs.

CONCLUSION

The purpose of this study plan is to encourage and promote the use of natural resource interpretation at Grant-Kohrs Ranch National Historic Site. The rationale and justification for its implementation has been researched and documented.

At the very least, it will provide a basis for GRKO personnel to develop their own related programs which can help the park to "grow". At best, it will be the beginning of a unified effort by each division to contribute time, enthusiasm, and individual expertise toward a more comprehensive interpretive program. The recommendations are based upon the needs expressed by citizens and citizen groups, and from national administrative policies directing park managers to increase interpretive services for greater public impact, and to provide quality recreational and educational experiences in all National Parks.

FOOTNOTES

¹Dyan Zaslowsky and The Wilderness Society, These American Lands: Parks, Wilderness, and the Public Lands (New York, New York: Henry Holt and Company, 1986), p. 9.

²Includes national monuments, preserves, lakeshores, seashores, historic sites, memorials, recreation areas and capitol parks.

³U.S., Department of the Interior, National Park Service, Interpretation and Visitor Services Guideline: NPS-6, Release No. 3 (1986), chap. 1, p. 1.

⁴Freeman Tilden, Interpreting Our Heritage (Chapel Hill: University of North Carolina Press, 1967), p. 8.

⁵U.S., Department of the Interior, National Park Service, Management Policies (Washington, D.C.: U.S. Government Printing Office, 1978), chap. 7, p. 2.

⁶Grant W. Sharpe, Interpreting the Environment (New York: John Wiley & Sons, Inc., 1982), p. 75.

⁷Ibid., p. 76.

⁸U.S., Department of the Interior, National Park Service, Interpretation and Visitor Services Guideline, chap. 1, p. 3.

⁹This conflict is addressed in a recently drafted policy manual, U.S. Department of the Interior, National Park Service, Management Policies (March 1988).

¹⁰Russell E. Dickenson, "Interpretation in an Era of Change," Journal of Interpretation vol. 7, no. 1 (1982): p. 27.

¹¹U.S., Department of the Interior, Office of Science and Technology, National Park Service, State of the Parks 1980: A Report to Congress (May 1980), p. 36.

¹²Public Law 92-406, August 25, 1972, cited by U.S., Department of the Interior, National Park Service, "Statement for Interpretation and Visitor Services" (Deer Lodge, Montana, Grant-Kohrs Ranch National Historic Site, 1987) p. 1.

¹³National Park Service Act, U.S. Code, 39 Stat, 535, chap. 408, sec. 1.

¹⁴U.S., Department of the Interior, National Park Service, Grant-Kohrs Ranch National Historic Site, (Deer Lodge, Montana, 1987) p. 2-3.

¹⁵The current scenic easements affecting adjacent lands state that to retain the open ranch character of the land, no action may be taken to use the land for other than livestock and ranching purposes. An easement is a legally enforceable interest in real estate created by the transfer of certain rights. See the National Park Service Land Protection Plan, p. 10.

¹⁶Russ Olsen, Administrative History: Organizational Structures of the National Park Service 1917-1985 (Washington, D.C.: Government Printing Office, September 1985) p. 29.

¹⁷U.S., Department of the Interior, National Park Service, Statement for Interpretation and Visitor Services, p. 15.

¹⁸Interview with Jock Whitworth, National Park Service, Big Hole Battlefield National Monument, Deer Lodge, Montana, 14 March 1988.

¹⁹Interview with Manager of Towe Ford Museum and Montana Territorial Prison, Deer Lodge, Montana, 8 March 1988.

²⁰U.S., Department of the Interior, National Park Service, Statement for Interpretation and Visitor Services, p. 23.

²¹Grant Sharpe, Interpreting the Environment, p. 53-56.

²²Figure 1 lists the Twelve Point Plan, the sixth point specifically addresses citizen involvement.

²³U.S., Department of the Interior, National Park Service, Rocky Mountain Regional Office, Cultural Landscape Analysis: Grant-Kohrs Ranch National Historic Site (Denver, Colorado, June 1987), p. 3.

²⁴Gary Ray and Peter Rice, Floral and Faunal Survey and Toxic Metal Contamination Study of the Grant-Kohrs Ranch National Historic Site (Missoula, Montana: University of Montana, May 1984) p. 8.

²⁵U.S., Department of the Interior, National Park Service, Cultural Landscape Analysis, p. 10.

²⁶Term coined by Stewart L. Udall, in The Quiet Crisis (New York: Holt, Rinehart and Winston, 1963).

²⁷Granville Stuart, Montana As It Is: being a general description of its resources, both mineral and agricultural, including a complete description of the face of the country, its climate, etc. (New York: C.S. Wetcott and Co., 1865) p 60.

²⁸Joan Louise Brownell, "The Genesis of Wildlife Conservation in Montana," (Masters Thesis, Montana State University, 1987), p. 19.

²⁹Bruce Farling, "Montana's Clark Fork River: An Industrial Drain," High Country News (Paonia, Colorado), 14 March 1988, p. 12.

³⁰Ibid., p. 8.

³¹Conrad Kohrs, Conrad Kohrs: An Autobiography (Deer Lodge, Montana: Platen Press, 1977), p. 13.

³²Gary Ray and Peter Rice, Floral and Faunal Survey.

³³Bruce Farling, "The Legacy of Montana's Pioneers," High County News (Paonia, Colorado), 14 March 1988, p. 11.

³⁴Bob Anez, "Schwinden Resurrects Suit to Clean Clark Fork River," The Missoulian (Montana), 13 February 1988, p. 1.

³⁵Ibid.

³⁶Gary Ray and Peter Rice, p. 27-28.

³⁷C.B. No. 5, Council Journal of the Seventh Session, 1871-1872 (Deer Lodge, Montana: New Northwest, 1872), pp. 25, 39, 45, 58.

³⁸Joan Louise Brownell, p. 13.

³⁹H.B. No. 23, House Journal of the Ninth Session, 1876 (Helena, Montana: Herald, 1876), pp. 77, 97, 132, 140, 149, 159, 160, 182, 302.

⁴⁰Joan Louise Brownell, p. 5.

⁴¹William D. Rowley, U.S. Forest Service Grazing and Rangelands: A History (College Station: Texas A & M University Press, 1985), p. 8.

⁴²Ibid., p. 13.

⁴³Gary Ray and Peter Rice, p. iv.

⁴⁴A relict is defined as, "An organism or species of an earlier time surviving in an environment that has undergone considerable change." William Morris, ed., The American Heritage Dictionary of the English Language (Boston: Houghton Mifflin Company, 1976).

⁴⁵Spotted knapweed is listed by the Montana State Department of Agriculture as a noxious weed.

⁴⁶Interview with Annette Deyling, Soil Conservation Service, Deer Lodge, Montana, 8 February 1988.

⁴⁷John R. Lacey, "A Complete Takeover By Knapweed in 2001?" Montana Farmer-Stockman, (July, 1983).

⁴⁸The Missoulian (Montana), 17 January 1988.

⁴⁹Annette Deyling, "Some Facts About Knapweed", Included in papers on Range Site Analysis, Soil Conservation Service, Deer Lodge, Montana, 9 February 1988. (Typewritten.)

⁵⁰Grant Sharpe, Interpreting the Environment, chap. 4.

⁵¹See Figure 1 for the Twelve Point Plan, from "12 - Point Plan: The Challenge," U.S. Department of the Interior, National Park Service, printed by the National Park Foundation, and the Arizona Memorial Museum Association.

⁵²Ibid., specifically point 3.

⁵³Dyan Zaslowsky and The Wilderness Society, These American Lands, chap. 1.

⁵⁴The Conservation Foudation, National Parks for a New Generation: Visions, Realities, Prospects (Washington, D.C.: The Conservation Foundation, 1985), p. 309.

⁵⁵U.S., Department of the Interior, National Park Service, Statement for Interpretation and Visitor Services, p. 1.

⁵⁶The scenic values and lack of adjacent development are addressed in U.S. Department of the Interior, National Park Service documents, Cultural Landscape Analysis (June 1987), Land Protection Plan (May 1985), and Environmental Assessment (March 1975). These documents were written for Grant-Kohrs Ranch by park managers at Rocky Mountain Regional Office in Denver, Colorado.

⁵⁷U.S. Department of the Interior, National Park Service, Grant-Kohrs Ranch National Historic Site, Land Protection Plan, (Deer Lodge, Montana, 1985) p. 2.

⁵⁸U.S., Department of the Interior, National Park Service, Cultural Landscape Analysis, p. 27-31.
Analysis, p. 27-31.

⁵⁹Montana Department of Health and Environmental Sciences, Solid and Hazardous Waste Bureau, "Fact Sheet: Superfund Site Newsletter," (Helena, Montana, November 1987), p. 2.

⁶⁰Bob Anez, "Schwinden Resurrects Suit to Clean Clark Fork River," The Missoulian (Montana), 13 February 1988, p. 1.

⁶¹Russel E. Dickinson, "Interpretation in an Era of Change", Journal of Interpretation, p. 27.

⁶²James P. Hamilton, "Environmental Locus of Control as a Function of the Perceived Importance of Environmental Problems and Environmental Knowledge," Journal of Interpretation, vol. 11, no. 2 (1986): pp. 28-29.

⁶³U.S., Department of the Interior, National Park Service, Statement for Interpretation and Visitor Services, p. 2.

⁶⁴U.S., Department of the Interior, Office of Science and Technology, National Park Service, State of the Parks 1980, p. 52.

⁶⁵Interview with Errol Hammond, U.S. Forest Service, Deer Lodge Ranger District, Deer Lodge, Montana, 1 February 1988.

⁶⁶Disturbed sites are areas where vegetation is removed or destroyed. Examples include severe soil compaction, constructions sites, cultivated areas, overgrazed areas or eroded areas.

⁶⁷Montana Department of Health and Environmental Sciences, Solid Waste Bureau, "Fact Sheet", p. 4.

⁶⁸Refer to Figure 1, specifically point 6.

⁶⁹Grant Sharpe, Interpreting the Environment, p. 89.

⁷⁰U.S., Department of the Interior, National Park Service, Historic Resource Study and Historic Structure Report: Historical Data: Kohrs and Bielenberg Home Ranch: Grant-Kohrs Ranch National Historic Site: Montana. (Denver Service Center, Historic Preservation Division, Colorado, 1979).

⁷¹U.S., Department of the Interior, National Park Service, Cultural Landscape Analysis, p. 3.

⁷²Grant Sharpe, Interpreting the Environment, p. 90.

⁷³Freeman Tilden, Interpreting Our Heritage, p. 8.

⁷⁴Glacier Natural History Association is a non-profit organization, cooperating with the National Park Service in interpretive programs and publications such as trail brochures and leaflets. The Association offers at nominal cost, publications to help develop a broad understanding of plant and animal life, geology, history, Indians, and related subjects. Cost of producing and publishing trail guides is minimal, and their advice should be sought on development and cost of several trail guides for Grant-Kohrs Ranch.

⁷⁵The lower yard consists of the variety of structures, buildings, and corrals lying directly West or North of the main ranch house. It is a heavily used area and the site of all ranching demonstrations or programs.

⁷⁶Grant Sharpe, Interpreting the Environment, p. 116.

⁷⁷U.S., Department of the Interior, National Park Service, General Management Plan: Grant-Kohrs National Historic Site, Montana (Washington, D.C.: Government Printing Office, 1980) p. 29.

⁷⁸U.S., Department of the Interior, National Park Service, Grant-Kohrs Ranch National Historic Site: Statement for Management. (Denver: Rocky Mountain Region, October 1987) p. 14

⁷⁹Ibid., p. 15.

⁸⁰Grant Sharpe, Interpreting the Environment, p. 318.

⁸¹Ibid., p. 319.

⁸²U.S., Department of the Interior, National Park Service, Management Policies, (1978), chap. 3, p. 4.

⁸³Allan S. Mills and Daniel E. Wegner, "A Market Oriented Analysis of Visitors to the Lyndon B. Johnson National and State Historical Parks," (College Station, Texas: Cooperative Park Studies Unit, Texas A & M University, 1985), p. 3.

⁸⁴U.S., Department of the Interior, National Park Service, Grant-Kohrs Ranch National Historic Site, Land Protection Plan, p. 29.

⁸⁵U.S., Department of the Interior, National Park Service, Cultural Landscape Analysis, p. 29.

⁸⁶Gary Ray and Peter Rice, Floral and Faunal Survey and Toxic Metal Contamination Study, p. iv.

⁸⁷Gary Ray, Baseline Plant Inventory of the Grant-Kohrs Ranch, (Missoula, Montana: University of Montana, July, 1984), p. 3.

⁸⁸As of April 1988, the National Park Service is in the process of acquiring, in fee, over 1000 additional acres to be included within the park boundary of Grant-Kohrs Ranch. If the land is secured, this grassland parcel would be surrounded on three sides by National Park Service land.

⁸⁹Gary Ray and Peter Rice, Floral and Faunal Survey, p. 63.

⁹⁰Ibid., ". . . it has a small component of some of the typical exotic and weedy species."

⁹¹Gary Ray, Baseline Plant Inventory, p. 4

⁹²Gary Ray and Peter Rice, Floral and Faunal Survey, p. 64.

⁹³This native prairie remnant is located in the SW 1/4 Sec. 28 T. 8N R. 9W, and is owned by Glacier Park Company, contact person is Mike Devine, 2718 Montana Ave., Billings, Montana 59101.

⁹⁴The Missoulian, (Montana), 17 January 1988.

⁹⁵U.S., Department of the Interior, National Park Service, Management Policies, chap. 4, p. 12.

⁹⁶This information was obtained from the Soil Conservation Service during a range analysis conducted in the field at the prairie parcel site. (The Forest Service has an applicator which is available for use.)

⁹⁷The price quote of \$90.95 per gallon for Tordon was obtained from Ed Brubaker, of the Deer Lodge Livestock Company in February 1988. The Dow Chemical distributor for this area is Steven C. Saunders, 312 20th Ave. S., Great Falls, Montana 59405. His phone number is (406) 452-4647.

⁹⁸J. Robert Stottleyer, "Evolution of Management Policy and Research in the National Parks", Journal of Forestry (January 1981): p. 16-20

⁹⁹U.S., Department of the Interior, Office of Science and Technology, National Park Service, State of the Parks 1980, 57p.

¹⁰⁰Alston Chase, "How to Save Our National Parks", The Atlantic Monthly (July 1987): p. 35-44.

¹⁰¹U.S., Department of the Interior, National Park Service, General Management Plan, p. 19.

¹⁰²U.S., Department of the Interior, National Park Service, Management Policies, (Washington, D.C. March 1988) chap. 5, p. 3.

¹⁰³The use of recording quiz boards and mechanical self-testing devices is discussed by Grant Sharpe and others in Chapter 27 of Interpreting the Environment.

¹⁰⁴Joseph L. Sax, Mountains Without Handrails: Reflections on the National Parks, (Ann Arbor: The University of Michigan Press, 1980), p. 20, 25, 42.

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