

VISITORS' VALUES OF NATURAL RESOURCES
AND CULTURAL RESOURCES ON DAKOTA
PRAIRIE NATIONAL GRASSLANDS

A Dissertation
Submitted to the Graduate Faculty
of the
North Dakota State University
Of Agriculture and Applied Science

By

Bruce Richard Steele

In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OR PHILOSOPHY

Major Program:
Natural Resources Management

September 2010

Fargo, North Dakota

North Dakota State University

Graduate School

Title

VISITORS' VALUES OF NATURAL RESOURCES AND CULTURAL RESOURCES ON

DAKOTA PRAIRIE NATIONAL GRASSLANDS

By

Bruce R. Steele

The Supervisory Committee certifies that this *disquisition* complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

North Dakota State University Libraries Addendum

To protect the privacy of individuals associated with the document, signatures or other personal identification information have been removed from the digital version of this document.

ABSTRACT

Steele, Bruce Richard; Ph.D.; Program of Natural Resources Management; College of Graduate and Interdisciplinary Studies; North Dakota State University; September 2010. Visitors' Values of Natural Resources and Cultural Resources on Dakota Prairie National Grasslands. Major Professors: Dr. Gary A. Goreham and Dr. Carolyn E. Grygiel.

Managing Dakota Prairie National Grasslands requires an understanding of visitor relationships to nature and culture. As national grasslands continue to draw visitors for recreation, relaxation, and wildlife observation the value visitors place on associated resources is important to the management decision process. At the request of the Forest Service, the study focus was specifically on national grasslands visitors. The objectives were to 1) determine the value stakeholders have on our natural resources, 2) determine the value stakeholders place on cultural resources, and 3) national grasslands visitors' perceptions on the origin of federal policies concerning natural and cultural resources. Thus, visitors including interest groups and range scientists were primary sources of data. Qualitative analysis methods were used to determine that for visitors, natural resources were valued more than cultural resources. Furthermore, the general perception of visitors was that policies concerning natural resources originate at local levels whereas cultural resources policies originate at the federal level. Public school systems have had little inclusion of environmental education in their curriculum and the Forest Service has been responsible to keep visitors informed about national grassland ecology. Because the Forest Service mission does not include the preservation of cultural resources there is little initiative by the Forest Service to protect those resources. Therefore, damage to cultural artifacts on national grasslands by uninformed visitors is likely. The future of national grasslands management clearly rests on the integration of natural and cultural resources training and education for both employees and visitors.

ACKNOWLEDGMENTS

First, I sincerely offer my deepest appreciation to Dr. Gary Goreham and Dr. Carolyn Grygiel for their guidance, council, and mentorship. As advisors, they were instrumental in greatly expanding my orientation from sociology specific to the much broader human aspects of managing natural resources. Next, I would like to thank welcomed team members Dr. Stacy Duffield and Dr. Larry Cihacek for their patience and guidance during a lengthy research project. I want to thank Dr. Jimmie Richardson, a retired and respected committee member for sharing his enthusiasm of life-long learning.

I am indebted to Mr. Tomas Turck of the U.S. Forest Service's Dakota Prairie National Grasslands who provided much insight to the agency. Tom's in-depth knowledge of the history, vision, and mission of national grasslands has been valuable. I want to thank Dr. David Pieper, Dakota Prairie National Grasslands Supervisor who approved the research project on the grasslands. Without their support, I could not have accomplished this important study.

Most of all, I am grateful to my life partner Karen who was more than supportive during my professional work days and graduate studies that took many evenings and weekends away from her. I look forward to our quality time together.

TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER 1. INTRODUCTION.....	1
Research Objectives.....	5
CHAPTER 2. LITERATURE REVIEW.....	9
Dakota Prairie National Grasslands.....	9
Management of Natural Resources and Cultural Resources.....	14
Theoretical Paradigm.....	19
CHAPTER 3. METHODS.....	23
Sampling Procedures.....	24
Data Collection.....	27
Data and Content Analysis.....	31
Methodological and Ethical Issues.....	34
CHAPTER 4. FINDINGS.....	39
Values Visitors Have on Natural Resources.....	39
Values Visitors Placed on Cultural Resources.....	53
Origin of Federal Policies.....	60
Other Emergent Themes.....	63
Conclusion.....	66
CHAPTER 5. DISCUSSION AND IMPLICATIONS.....	67
Environmental Education.....	67
Cultural Resource Education.....	73
Integrated Environmental Education Model.....	77
Implications.....	79
CHAPTER 6. CONCLUSIONS.....	83
BIBLIOGRAPHY.....	86
APPENDIX A. IRB REQUIRED DOCUMENTS.....	96
APPENDIX B. ABRIDGED INTERVIEW DATA.....	101

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Number of Respondents by Location and Purpose of Visit	26
2. Comparison of Forest Service, Park Service, and Bureau of Land Management Mission Statements.....	82

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Map, Little Missouri National Grasslands in western North Dakota and Sheyenne National Grasslands in eastern North Dakota.....	11
2. Steps in the Cyclical Process.....	28
3. Analysis Technique.....	33
4. Trustworthiness Criteria.....	36
5. Sample Travel Bug Used in Geocaching.....	46
6. Geocache.....	47
7. Grave Marker With Name, and Dates of Birth and Death of the Deceased.....	58
8. Grave Marker With Initials of the Deceased.....	59
9. Direction of Natural Resource Policy and Cultural Resource Policy Formation.....	61
10. Good and Best Education Practices.....	78
11. Relationships Between People, Nature, Resources, History, Culture, and Heritage.....	79

CHAPTER 1. INTRODUCTION

Cultural resources connect us to our past; whereas, natural resources connect us to our future. Artifacts left behind on or near our Dakota Prairie National Grasslands (DPNGs) provide historical insight to the people who were at one time present on the grasslands. The relationships between humans and these artifacts are the ingredients for socio-cultural knowledge. On the other hand, prairie habitats provide resources for a sustainable environment. The relationships between the environment and sustainable resources are the ingredients for the knowledge of natural resource managers. Sociologists integrate past human behavior taken from artifacts, documents, and human attitudes toward our resources. Natural resource managers integrate applications of preservation, conservation, and restoration. The human aspects of managing natural resources are a cross-disciplinary approach of integrating human behavior with managing natural resources.

How does this integration of preservation, conservation, and restoration application take place and what is the role of sociology in managing natural resources? An analogy may be taken from William Glasser's (1965) approach to reality therapy counseling. In reality therapy, the role of counselors is to help clients acknowledge their past, emphasize the present, then focus on their future. The core objective to the therapy is problem-solving by making cognitive choices (Glasser, 1965; Wubbolding, 1988). Counselors do this through inquiry and information collecting about their clients. Personal interviews with clients provide counselors important information, but not a holistic view without integration from other sources, such as a family genogram or court documents. The field of sociology can help resource managers integrate a diversity of disciplines for the purpose of making cognitive choices (in the here-and-now) about the future treatment of our resources.

They do this by understanding relationships between people and their resources (MacNaughte, Urry, Nickolson, Song, & Parker, 1995).

Firsthand knowledge of people's lived experiences is central to sociology. Inductively, personal interviews tell much about lived experiences from which to form a basis for meaningful interpretation and analysis. Interviews by themselves do not provide a holistic view of events without knowledge of place or artifacts. Added to firsthand testimony is an integration of case studies, histories, and documentation. Furthermore, researchers' personal experiences in the environment under observation are important to the holistic view of what is being observed. Thus, the use of multiple data sets provides systematic crosschecks, allowing a meaningful understanding of human behavior.

Sociologists often rely on code analyses to interpret their interview data. Code analysis is to sociology as pattern analysis is to archaeology. Both search for contextual relationships by pattern discovery. As an inductive approach, emerging relations in the context of lived experiences taken from code analysis leads to developing research questions for later deductive reasoning. Thus, code analyses become the foundation for testable hypotheses. It is with inductive reasoning that an investigation into the human aspects of managing cultural and natural resources on DPNGs developed.

Research on national forests is not a new concept. Much research began in the American Southwest then increased over time at northern parks. However, one of the most recent federal agency land-management assignments is the national grasslands under the Department of Agriculture's Forest Service. The federal government first acquired grassland regions through Title III of the Bankhead-Jones Farm Tenant Act of 1937. In 1954, the administration of grasslands became the responsibility of the U. S. Forest

Service. On June 23, 1960, the national grasslands were created as a conservation effort to manage grass, watersheds, and wildlife resources. Finally, the national grasslands were designated separate units of the National Forest System according to the Renewable Resource Planning Act of 1974 (U. S. Forest Service, 2002). Thus, there is not a long established history of research on national grasslands.

Located on and around DPNGs are both cultural and natural resources requiring care by the keepers of these resources. In some cases, an integration of preservation and sustainability goals is worthy of investigation. The notion of integrating sustainability goals between the keepers of culture and natural resources is a relatively new concept in the United States. Little empirical evidence exists on how stakeholders on the national grasslands view cultural resources compared to their view on natural resources. Tourism and recreation on DPNGs is an example of developing research, where the composition of tourism is an unknown (Leistriz & Bangsund, 2001). Furthermore, there is little quantitative data concerning the attraction of tourism to the grasslands (Leistriz & Bangsund, 2001).

The DPNGs supervisor provided me the opportunity to begin a qualitative project in 2004 for an inquiry into the value stakeholders place on cultural and natural resources, and a request by grassland officials for an emphasis on grassland visitors fit well with the research design. The largest of the DPNGs, the Little Missouri National Grasslands, and the smallest of the DPNGs, the Sheyenne National Grasslands, were selected for site visits and for the collection of information. Inclusive in the study were federal property and private or state properties near the grasslands.

Because cultural and natural resources are on state, federal, and private lands, access by multiple stakeholders is at times an issue. Museum curators for collections, scientists for study, citizens for private collections, and looters for profit value both types of resources. Overlapping, ambiguous ownership boundaries may also be problematic. Furthermore, inter-agency and intra-agency disagreements occasionally occur over the business of resource control. The concern of this study is the value visitors place on our resources. In the absence of any other relevant data, there is a need to understand the values stakeholders place on cultural resources and natural resources on and around our national grasslands. Thus, do visitors value natural resources differently than they value cultural resources?

Guided by the initial research query to learn if visitors to the national grasslands value natural resources more than they do cultural resources, I conducted preliminary interviews that help determine (1) the value visitors place on our natural resources, (2) the value visitors place on our cultural resources, and (3) the perception visitors have about the origin of federal policies on resources. Preliminary interview results helped to restructure the formal interview process. Onsite visits were confined primarily to the Sheyenne National Grasslands; whereas, visits to the Little Missouri National Grasslands were by live webcam or online websites. Besides personal interviews, limited documents such as news articles, maps, or policies as well as interest group meeting minutes were collected. These sources provide important implications for inductive research on the values stakeholders, primarily visitors, place on our resources.

Research Objectives

Management practices of cultural resources and natural resources on the DPNGs are important to the conservation, interpretation, and understanding of the personal histories of past inhabitants. With little empirical evidence of how visitors on the national grasslands view cultural resources compared to their view about natural resources, this study may be one of the first research projects to gather information from visitors using qualitative methods. Thus, research objectives focus on national grasslands visitor values and what individual visitors say and do. Managers of natural and cultural resources on national grasslands will benefit by understanding visitor behavior, and values.

Value of Natural Resources

The first objective is to determine the value stakeholders have of our natural resources. National grasslands are driven by two major forces. The first is anthropogenic or human change agents, as they relate to public perceptions and values toward natural resources (Ewert, Baker & Bissix, 2004). The way humans manipulate natural resources to meet their needs reflects their values towards these resources. The second is biophysical, or events of a physical nature such as erosion. Grasslands, for example, contain natural resources such as plants, soils, and animals (Clark, 2002). Thus, things in the natural world become natural resources only because of the value placed on them by humans (Ewert, Baker & Bissix, 2004; Brandes). The human factors that influence the management of our natural resources include a diversity of values, lifestyles, resource management attitudes, and ideologies. In the context of natural resources, research respondents have an opportunity to relate their personal experiences on or near national grasslands.

Value of Cultural Resources

The second objective is to determine the value stakeholders place on our cultural resources. Cultural resources may be defined as the remains of the way of life of past peoples (Bureau of Reclamation: Commissioner's Office of Policy, 2002). Culture conservation deals with maintenance, planning, and documentation of tangible and intangible cultural resources (Library of Congress, 1983; McKercher & Cros, 2002). Whereas cemeteries, historic buildings, heritage landscapes, archaeological sites, and objects are examples of tangible resources, traditional histories, folklore, and language are intangible resources (McKercher & Cros, 2002; Schiffer & Gumerman, 1977; Wang, Anderson, & Jakes, 2002). Research respondents relate their personal attitude, and in some cases, relate their personal experiences to cultural resources on DPNGs.

Federal Policies on Resources

The third objective is to determine national grasslands visitors' perceptions on the origin of federal policies concerning natural and cultural resources. Our nation's founding leaders set the tone as early as the 1770s for how natural resources would be treated at federal and state government levels centuries later. Believing that public lands are under better management by the government than by individual states, both Alexander Hamilton and Thomas Jefferson had the notion of placing the administration of natural resources under federal legislation (Caldwell, 1987). Hamilton, on one hand, believed in the preservation of natural resources; whereas, Jefferson had the notion of selling natural resources to help pay the national debt (Caldwell, 1987). Presidents and their administration since Hamilton and Jefferson have helped to shape federal policies on the use of natural resources. President Theodore Roosevelt, for example, was a driving force

toward both the preservation and conservation efforts of public lands from the late 19th century into the 20th century (Brinkley, 2009). Indeed, Roosevelt either enlarged or created no fewer than 150 National Forests over a span of eight years beginning in 1901, and in 1905 he created the Bureau of Forestry under the Department of Agriculture (Brinkley, 2009; Moore, 2007).

Roosevelt was clearly a public land use visionary, and by signing the 1906 Antiquities Act he understood the long term significance of preserving heritage resources (Brinkley, 2009). The Antiquities Act allows the President to create National Monuments from public lands and protects antiquities from disturbance on federal lands (16 U.S.C. 433). By policy, however, the Forest Service's primary task is to protect watersheds and to provide timber. Thus Forest Service policy has little inclusion of cultural resources protection such as would be found in the National Historic Preservation Act (Jarvis, 2008). Because DPNs are under the Forest Service, national grasslands policies on cultural or historical resources are reflective of Forest Service policies. As reported by Jarvis (2008), the Forest Service manages and preserves sites significant to Forest Service history, such as the Elkhorn Ranch on the Little Missouri National Grasslands; whereas, homesteads on the Shyenenne National Grasslands are likely to be allowed to deteriorate.

Six chapters constitute this dissertation. Chapter 1, the Introduction, consists of the basis of research objectives. Chapter 2 provides a review of literature as it pertains to the research objectives, a background about the Dakota Prairie National Grasslands, and the theoretical research paradigm. Chapter 3, the methods section, describes the qualitative research design. Research results are reported in Chapter 4. The first four chapters represent an acknowledgement of the past and emphasize the present; whereas, Chapter 5

focuses on the future through a discussion and implications. Conclusions of the research are presented in Chapter 6.

CHAPTER 2. LITERATURE REVIEW

Relationships between visitors and natural resources and relationships between visitors and cultural resources discussed in literature are applicable to the human aspects of managing resources on the national grasslands. The Literature Review has four sections. The first section provides historical aspects of the Dakota Prairie National Grasslands, and the administrative relationship to individual Ranger Districts. The section on Natural Resources and Cultural Resources Management presents definitions and values, and outlines the challenges of resource management through federal policies. An overview of visitor trends on national grasslands and national parks is examined in Section Three. The final section, Theoretical Paradigm, introduces Ralph Dahrendorf's theoretical approach to conflict. A fundamental literature base provides a cross-reference platform for a qualitative analysis of the value visitors place on natural and cultural resources found on the national grasslands from their personal experiences.

Dakota Prairie National Grasslands

One of the most recent federal agency land-management assignments to the United States Department of Agriculture Forest Service is the national grasslands. Much land on the Great Plains was first acquired in 1803 with the Louisiana Purchase, and by 1890 nearly six million settlers began ranching practices in response to the Homestead Act of 1862 (Forest Service, 2002). The acquisition of grassland regions by the federal government occurred through Title III of the Bankhead-Jones Farm Tenant Act of 1937, and in 1954 the administration of grasslands officially became the responsibility of the Forest Service (Harvey, 2005). The national grasslands were created in 1960 as a conservation effort to manage resources including grass, watersheds, and wildlife. Finally,

the national grasslands were designated a separate unit of the National Forest System through to the Renewable Resource Planning Act of 1974 (Forest Service, 2002; Harvey, 2005). At present there are 20 national grasslands accounting for just two percent of the total acreage belonging to the National Forest System. Of the 20 grassland reserves, 17 are within the Great Plains (Kemmis, 1990; Manning, 1995); whereas, the three remaining grassland reserves are in Great Basin states.

The Forest Service currently administers approximately 1,105,291 acres of federal lands among four national grasslands that make up the Dakota Prairie National Grasslands. Intermingled with public property under Forest Service care are private and state lands (Forest Service, 2008). As of October 1, 1998 the Little Missouri National Grasslands and the Sheyenne National Grasslands in North Dakota were assigned to the Dakota Prairie National Grasslands, along with Cedar River National Grasslands in North Dakota, and Grand River National Grasslands in South Dakota. The Little Missouri National Grasslands are divided into two Ranger District Offices, the McKenzie to the north and the Medora to the south; whereas, the Sheyenne grasslands are under the supervision of the Sheyenne Ranger District Office. The Cedar River National Grasslands and the Grand River National Grasslands are administered by the Grand River Ranger District Office (Forest Service, 2008). Thus, four distinct and diverse topographical regions within the stewardship of the Dakota Prairie National Grasslands require meeting the needs of stakeholders in terms of land use.

In western North Dakota is the Little Missouri National Grasslands, the largest of the National Grasslands in the nation (Figure 1). At a southeastern section of North Dakota is the Sheyenne National Grasslands, the second largest in the Dakota Prairie National

Grasslands (Figure 1) (U.S Forest Service, 2008). In comparison, visitors have more recreational and cultural options at the Little Missouri National Grasslands than do visitors at the Sheyenne National Grasslands. A focus of this study is on visitor experiences at the Dakota Prairie National Grasslands. Specifically, the Little Missouri and the Sheyenne National Grasslands, two distinctly different regions in cultural and in management plans, that are central to learning what visitors say and do. Not to be ignored are conflicts on land use and cultural management that may occur between multiple stakeholders.

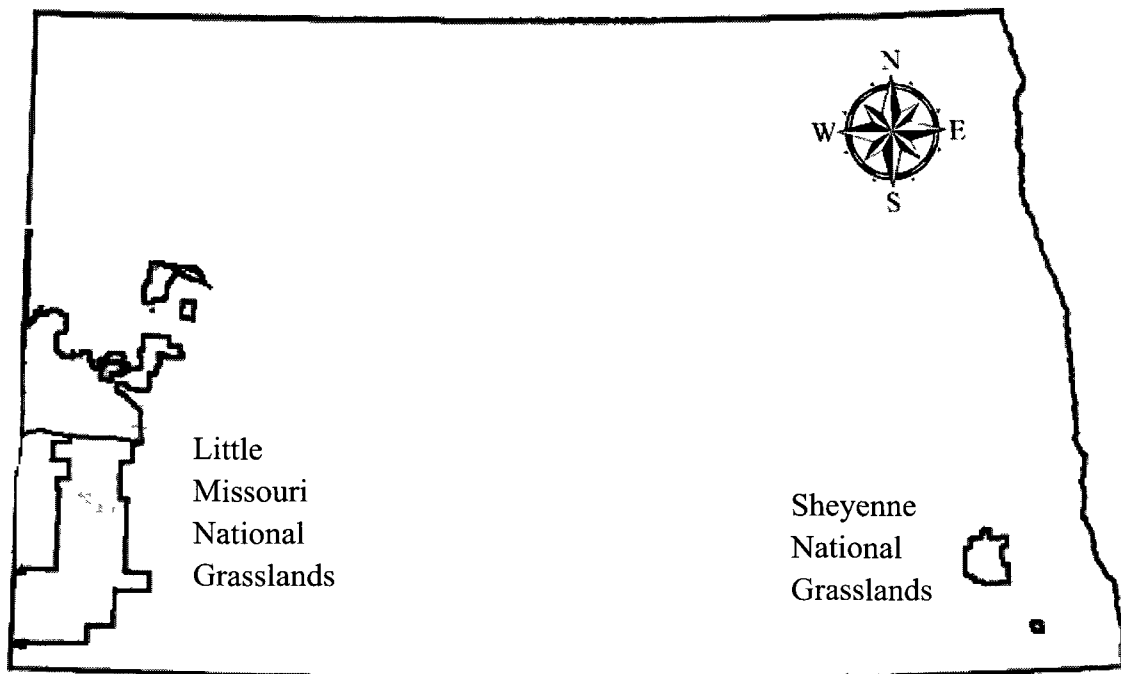


Figure 1. Map, Little Missouri National Grasslands in western North Dakota and Sheyenne National Grasslands in eastern North Dakota.

Little Missouri National Grasslands

Boasting approximately 1,028,128 acres, the Little Missouri National Grasslands is the largest of the national grasslands in North Dakota and of the 20 national grasslands in the nation (Forest Service, 2008). Located in western North Dakota in a region commonly known as the North Dakota Badlands, the Forest Service appears to concentrate on two

management plans: (1) land management, and (2) gas, oil, and mineral extraction. Old scarcities of gas, oil, and mineral extraction have categorical exclusions on federal leases in Section 390 of the 2005 Energy Policy Act. Thus, exploration and extraction timelines are expedited and there is no change to on-the-ground activities (Forest Service, 2010).

Land management plans include cattle grazing and recreation, such as back packing, horseback riding, trails, and road use, where sustainability of endangered and threatened species is an on-going management challenge by the Forest Service. For example, plans outlined in the Forest Service Monitoring and Evaluation Report (2002) are to increase the black-tailed prairie dog (*Cynomys ludovicianus*) count in certain areas of the Little Missouri National Grasslands in order to manage black-footed ferret (*Mustela nigripes*) populations. As an endangered species, the black-footed ferret is dependent on the prairie dog for diet, and habitat use. The effort to increase the prairie dog count could result in land use changes for cattle producers who lease Forest Service managed grasslands.

Little Missouri National Grasslands visitors have the opportunity to enjoy both natural and cultural resources through interpretive, historic, and observation sites. The 96 mile Maah Daah Hey Trail, for example, is significant for back packing, biking, and nature walks; whereas, the 2006 acquisition of the Elkhorn Ranch by the Park Service has historic and ecological importance. The Elkhorn Ranch is known for the cattle ranch operation of President Theodore Roosevelt, who cared about ecological sustainability on the property (Brinkley, 2009; Forest Service, 2006). The Maah Daah Hey Trail is well maintained, with water wells drilled in strategic spots to make the trail tourist friendly and safe.

Under the 2008 Consolidated Appropriations Act, the Secretary of Agriculture sold more than 5,000 acres of National Forest property in Billings County, North Dakota to offset net gain by the acquisition of the Elkhorn Ranch (Forest Service, 2008). Important to the land transfers is that there was no environmental or heritage analysis conducted according to the Consolidated Appropriations Act of 2008, and little mention in Forest Service regulations is made of provisions under the National Historic Prevention Act (Jarvis, 2008).

Sheyenne National Grasslands

The second largest of the National Grasslands in North Dakota is the Sheyenne National Grasslands with approximately 70,446 acres of land in mixed grasses and tall grasses (Sierra Club, 1993; U.S. Forest Service, 2008). Touted by the Dakota Prairie National Grasslands as tall grass prairie, the Sheyenne grasslands are located in southeastern North Dakota.

Land use and resource management is the primary focus of the District Ranger concerning cattle grazing practices and habitat sustainability for endangered species, such as prairie chickens (*Tympanuchus cupido*) and other wildlife species (Sierra Club, 1993). According to the Forest Service (2002) Monitoring and Evaluation Report, 31 species of sensitive plants, such as the western prairie white-fringed orchid (*Platanthera praeclara*), are on the Sheyenne National Grasslands. Although cattle grazing management takes the majority of planning discussion process, much ranching in the region has given way to the plow for agriculture practices.

Connected to six other states, the North Country National Scenic Trail, running 25 miles east and west through the Sheyenne National Grasslands, is the major trail for the use

by people hiking, back packing, mountain biking, and riding horse. Visitors looking for endangered plant species will find them along trails. Bird watchers will find a diversity of bird species that includes an increasing prairie chicken (*Tympanuchus cupido*) population throughout much of the region. Besides hiking, horseback riding, and mountain biking, recreational activities include fishing, canoeing, and hunting.

Management of Natural Resources and Cultural Resources

Because the management of natural resources and cultural resources under the administration of the Dakota Prairie National Grasslands may be complex, it stands to reason that integrated, multidisciplinary strategies need to be in place to best manage these resources. These resources have different definitions and values with resource-specific management practices, and management policies.

Definitions and Values

The combination of defined natural and cultural resources requires some latitude with an understanding of human values because when human values are present, ambiguity is likely. Fringed sagebrush (*Artemisia frigida*), for instance, on national grasslands by definition is a natural resource that has some forage value (Subberndieck, Hatch, & Lambolt, 2003; Stevens, 1963). Conversely, when used by some Native American groups for purification or other purposes (Jordan, 2008; Meuninck, 1996; St. Perre & Long Soldier, 1995; Yellowtail & Fitzgerald, 1991), sagebrush becomes a cultural resource. Sweetgrass (*Hierochloa hirta*) may hold value as a natural resource in some cultures (Subberndieck, Hatch, & Lambolt, 2003); whereas, the same grass holds ceremonial value to others (Meuninck, 1996). Likewise, the American bison (*Bison bison*) may be a natural resource to some (Lott, 2002; Manning 1995), but the same animal is considered a cultural

resource to others (Manning, 1995; St. Pierre & Long Soldier, 1995, Wishart, 2007). Thus, the same item (bird, fish, plant, or animal) likely holds value as both a natural and a cultural resource.

Referred to as the common good, utilitarianism relates to intrinsic values people place on Dakota Prairie National Grasslands resources (Blackburn, 1996). Some researchers, such as Louv (2008), believe that the very act of observing wildlife in a natural setting connects visitors to nature. On the other hand, others see the value of being in a natural environment as a therapeutic approach to self-awareness, relationships to others, and spirituality (Nebbe, 1991). An extension to the notions of connecting to nature and natural environment therapy is animal assisted therapy, such as horsemanship therapy. Thus, in a broad sense, being with range animals, bird watching, or simply appreciating the aesthetics of Dakota Prairie National Grasslands may be intrinsically valuable to visitors (Louv, 2008; Nebbe, 1991).

Management Practices

Best practices for land management and the management of cultural heritage resources is an on-going, evolving process. In terms of managing natural resources, the philosophical camp has been divided since the mid-1800s: conservationists on one side and preservationists on the other. Conservationists, such as Gifford Pinchot, supported wise use and sustainability of natural resources; whereas, preservationists, such as John Muir, advocated no disturbance policies (Brinkley, 2009). Muir was a founding member of the 1892 Sierra Club, which focused on wilderness preservation. In 1898, Pinchot began his duties to oversee the Department of Agriculture Division of Forestry, where he was an advocate of managing forests scientifically. In the middle of the divided camp was

Theodore Roosevelt, who saw the merit in both conservation and preservation (Brinkley, 2009). As Vice President, Roosevelt could do little more than campaign for nature with Muir, Gilford, and others including ornithologist George Grinnell and author Henry David Thoreau (Brinkley, 2009). However, when he assumed the office of President in 1901, Roosevelt moved quickly to begin legislative actions addressing the need for proactive resources management (Brinkley, 2009).

A review of literature reveals that trends of cultural and heritage resources preservation efforts began in earnest during the 1960s, starting in the American Southwest, and later expanded to the Rocky Mountain forest areas, mostly on U.S. Department of Interior lands. American cultural preservation methods were typically adapted from European preservation systems, and carried out by historians (Lee, 2004). Little information on managing cultural resources on national grasslands exists, and managing cultural resources can be just as challenging to national grasslands managers as are natural resources. This is because obtaining data on the actual number of cultural resources for quantitative study is difficult for two reasons. First, the number of tangible resources increases over time (McKercher & Cros, 2002). Second, no agency has to-date been able to comply with Executive Order 11593, which require agencies to inventory all cultural resources. Furthermore, sociologists appear to leave the topic of managing cultural resources to archeologists (Wang, Anderson & Jakes, 2002; Write & Roher, 2002), who rely on data after the fact rather than first-hand information (Ferraro, 2002). No historic cultural sites are reported to be on the Sheyenne National Grasslands; whereas, the Little Missouri National Grasslands reportedly contain multiple archeological, historic, paleontological, and isolated artifact sites (U.S. Forest Service, 2008; Sierra Club, 1993).

The actual number and location of cultural resources in many parts of the national grasslands may be an educated guess until a disturbance in the landscape occurs. For example, a 1984 grassfire at the site of the 1876 Battle of Little Big Horn site exposed important tangible artifacts (Scott, Fox, Connor, & Harmon, 1989). Once these artifacts were exposed, archaeologists were able to study battleground artifacts resulting in support of conceptual changes to how the skirmish played out (Scott, Fox, Connor, & Harmon, 1989). Thus, such artifacts reveal a new insight on many aspects of the Battle of the Little Big horn important to the knowledge of historians, armchair historians, and scientists alike.

A model of cultural resources protection practices to follow may be found on some Native American tribal reservations. Outside reservation lands, decisions on what resource are to be protected or not protected is based on values: the higher the value, the better resource protection afforded (Stoffle, Helms, & Austin, 1997).

Policies

Organizational and human values are often reflective of government policy (Clark, Willard & Cromley, 2000). Forest Service and national grasslands policy reviews show that resource regulations are natural resource proactive and cultural resource reactive. The reviews support earlier findings that government agencies, such as the Forest Service, do not want to stray from their mission of watershed and forest management (Lee, 2004). Natural resource planning relies on multiple stakeholders and scientific information as part of the planning process. Although some comprehensive models of cultural resources dealing with multiple stakeholders proactively seek conflict resolution (Anyon & Ferguson, 1995; Bushbaum, 1993), nothing of this depth is evident with national grasslands administration policy. Because cultural resources are non-renewable, proactive resource

management is necessary (Bureau of Reclamation: Commissioner's Office of Policy, 2002; Conner, Hartig & Christensen, 1993). Thus, a shift in organizational values towards proactive rather than reactive conflict resolution may be necessary in the near future.

When thinking in terms of natural or cultural resources, human values and perceptions often drive policy toward conservation or preservation. For example, increasing a prairie dog count to establish a healthy environment for black-footed ferrets may hold value to wildlife conservationists. On the other hand, local ranchers may not hold the same value if they perceive that the prairie dog adversely affects grazing operations. At times when values are factors in defining resources, definitions may become ambiguous, particularly when applied to the same item resulting in conflict over best management practices. Thus, a defined resource needing preservation, protection, or conservation depends upon the final determining value humans place on these resource. This calls for multidisciplinary management plans to successfully achieve positive outcomes.

Visitor Trends

Visitors on the Dakota DPNGs typically are interested in recreation, aesthetics, or touring historical places at national parks. Overall national park visitations increased substantially after WWII, and the Park Service responded by improving roads and facilities to meet infrastructure demands (Harvey, 2005). The Forest Service reported in their most current Monitoring and Evaluation Report (2002) that 739,157 individual recreational users were on DPGs in 2002. In addition to grasslands visitors, grazing on the grasslands by ranching operations is permitted on DPNGs for land management purposes. The impact of the increase on DPGs is potential overuse, dependency on visitors, sources of revenue for

the local economy, visitor behavior, and over grazing of livestock (Harvey, 2005; McKercher, 2002). The results could lead to land degradation and a depletion of limited budgetary resources. On the other hand, a decrease in tourism has a different impact on the DPGs than does an increase in visitations because maintaining grasslands infrastructure or upgrading or building new facilities must be accomplished with fewer federal dollars. The overall number of national park visitors is indeed declining. Some blame the economy with rising costs for travel and vacation; whereas, others note a correlation between less travel and increasing electronic media (Zaradic & Pergams, 2007). Electronic media and internet platforms are available to visit out of door places, such as parks, online so that travel is not necessary.

The challenge is to provide free public access to places such as the Sheyenne National Grasslands without an increase in financing or resources. With these limitations there are choices to be made - whether to conserve natural resources while preserving cultural resources, or to focus efforts on one and not the other. Conservationist Aldo Leopold did not wholly agree that there should be a monetary value placed on natural resources (Harvey, 2005). Yet in the final analysis, it will be up to the public to decide the value of these resources.

Theoretical Paradigm

The primary purpose of this study is an exploration of values visitors place on natural and cultural resources located on and near national grasslands as well as visitor perceptions about policy affecting these resources. Caretakers of national grasslands are in a constant struggle between protection and conservation practices, private and public sectors, and corporate entities wanting access to natural resources. Those who espouse

resource protection believe that no utilization of nature is the best policy; whereas, conservation has to do with wise and sustainable use of the resource (Harvey, 2005). Because of potential conflicts within the Forest Service and between interest groups on national grasslands, contemporary sociologist Ralph Dahrendorf's (1988) work on conflict is an appropriate reference point to guide the research. Two relevant aspects of Dahrendorf's argument on conflict are the unequal distribution of authority and conflict among interest groups.

For Dahrendorf, the character of conflict is not merely caused by class struggle as suggested by Marx, but by unequally distributed authority (Dahrendorf, 1988, 1959; Ritzer & Goodman, 2004). Furthermore, Dahrendorf thought of power relationships in terms of legitimate power (Turner, 1973). Conflicting interests between those who rule and those who are ruled can result in two or more interest groups. One conflict resolution tactic is the redistribution of authority that may result in new groups of those who rule and those who are ruled (Turner, 1973).

An interesting phenomenon occurs when legitimate authority may be perceived as not having power over key resources. As discussed in Chapter 3, DPNGs visitors generally perceive natural resources policies being generated at the executive branch level (at the top); whereas, cultural resources policies are generated at the grass roots or interest group level. Thus, confusion over where legitimate authority and power lie at the Forest Service may be confusing. This is important to understanding legitimate authority and who has control over major resources (Hardy & Phillips, (1998).

Although Dahrendorf does not explicitly draw the conclusion from the distribution of authority, it leads to the proposition that leadership change also represents conflict

(Bebgstong & Fan, 1999). Using social indicator surveys, for instance, researchers Bengston and Fan (1999) found a relationship between conflict and changes in leadership that adversely impacted natural resources management practices. In some cases agency role changes coupled with leadership changes can be stressful to professionals in the agency because the mission and vision of that agency may change. In a 1994 survey of Natural Resources Conservation Service (NRCS), district conservationists reportedly experienced higher burnout rates than national norms citing leadership credibility factors (Garbis & Ihrke, 1996). This survey, called the Maslach Burnout Inventory, was completed as the NRCS changed roles from helping grassroots agriculturists to the role of regulating legislation dealing with the environment (Garbis & Ihrk, 1996).

Because special interest groups are at times passionate about the management of natural or cultural resources and interest groups often join alliances with other interest groups or recruit members into their group (Dahrendorf, 1959). For example, cattle producers in the Great Plains are leaving traditional Stockmen's groups in order to focus on producers over meatpackers (Donovan, 2005). As a driving force to social change, interest group conflict can serve to either maintain or undermine Forest Service stewardship efforts on Dakota Prairie National Grasslands (Dahrendorf, 1967). Whenever there is an increase in human activities, such as road surface or facilities construction, the possibility of conflict with other activities such as cattle and sheep grazing (Harvey, 2005). As noted in Chapter 3, local ranchers have been known to call congressional representatives in an effort to override Forest Service land management policy.

Dahrendorf's theory on conflict has some limitations, including the lack of dealing with norms and values and dealing with only limited parts of lived experiences (Ritzer &

Goodman, 2004). However, the strengths of his conflict theory helped to (1) explain special interest group conflict and (2) relationships between authority and policy.

CHAPTER 3. METHODS

Because little is known about visitors' values of natural resources, values on cultural resources, and their perceived origins of federal policies on these resources, a purpose of this study is to determine those values. Research objectives are to explore describe the relationships between visitors and natural resources, and cultural resources located on and around national grasslands. This section will consist of four sections: Sampling Procedures, Data Collection, Data and Content Analysis, and Methodological and Ethic issues.

Fundamental qualitative research methods drawn from Stein & Mankowski (2004), Corbin & Strauss (2008), and Taylor & Bogdan (1998) were used to explore the meanings and values people place on natural and cultural resources, following their notion that personal values are best obtained through interviewing techniques. Thus, an emerging story tells of visitors' relationship to resources on the national grasslands.

A mixed methods approach was used to collect and analyze obtained data, and I took on the role of a participant observer (Schwandt, 2001). Thus, evidence was gained using both in-depth and impromptu interviews with visitors, Forest Service employees, scientists and volunteers. My prior experience in guidance counseling provided me interviewing skills that were beneficial to this study. Another approach I took was the focus on tangible artifacts, such as maps and signage, landscape, gravesites, documents, and the Internet. Visitors' experiences, their values and perceptions are paramount to this study. Therefore, cross references to federal policy to correct any misperceptions by visitors was minimal.

Sampling Procedures

To achieve systematic, valid data collection as an outcome (Marshal & Rossman, 1999), I emphasized participant selection, and site selection in two subsections. Two visitor categories I used to help simplify procedures are those who visit Dakota Prairie National Grasslands for leisure or recreation, and those who contribute to grassland management. Examples of contributors to grassland management are Forest Service employees, research scientists, and local inhabitants.

Participant Selection

Nonrandom methods were used to select participants for on-site visitors. In all instances of lone individuals who were on-site, those individuals approached me as opposed to me approaching them, thereby facilitating the initial interview process. Small groups of participants ranged in size from two to five participants, such as backpackers and nature watchers. Individuals were not singled out from groups for interviewing, and all group members had an opportunity to participate in the interview process, thus fair selection was achieved.

Purposive sampling was used to locate research scientist, local inhabitants, cattle associations, horseback riding groups, research scientists, and local inhabitants. None of the three attempts to contact two cattle associations by mail, online, or phone resulted in a response to my request to interview the group about their roles on national grasslands. I used snowball sampling to identify Forest Service informants, and horseback riders who frequented national grasslands. After interviewing a Forest Service employee, the individual identified three other employees as potential study participants. In another case,

horseback riders provided a list of contact information on others with similar riding interests.

During on-site visits, I always wore a clothing item, such as a shirt or cap, with a logo of the National Association for Interpreters or a North Dakota State University bison. Furthermore, I carried worn maps, notebooks, and a knapsack. The purpose was to somehow make me stereotypically trustworthy to visitors, or to give the appearance of being knowledgeable about the national grasslands to other visitors. Thus, first-time visitor would approach me to ask questions or to make comments about the grassland site. In each case, I was able to note part of the conversation as a formal, or an informal, impromptu interview.

Although multiple populations were important to my study, the primary population of interest was the visitor for their lived experience. National Grassland employees, volunteers, and scientists for their hands-on experience at resources management, and land-owners and business owners for their vested interest were included in the study when possible. My goal 30 for the number of respondents was exceeded by six, thus gaining enough data for categorical saturation.

Of the 36 interviews, 14 visited the Sheyenne National Grasslands only; whereas, nine visitors related their experiences at the Little Missouri National Grasslands only (Table 1). Six individuals reported to have visited both Sheyenne and Little Missouri National Grasslands. Of the seven remaining participants, three were DPNGs employees, three were professional scientists, and one individual was a graduate student conducting research on the Little Missouri National Grasslands.

Table 1. Number of Respondents by Location and Purpose of Visit

Location	Purpose				<i>n</i>
	Leisure and recreation	Nature observation	Research	DPNGs Employee	
Sheyenne NG	10	3	1	0	14
Little Missouri NG	4	3	2	0	9
Sheyenne and Little Missouri NG	3	2	1	0	6
Off-Site	0	0	4	3	7
Total					36

On days during on-site visits that I was unable to locate visitors to interview, I explored the Sheyenne National Grasslands region with maps as reference, sought evidence of artifacts, and I walked through grave sites. The opportunity to explore alone provided first-hand experiences that I did not experience on the Little Missouri National Grasslands. My visits to the Little Missouri National Grasslands region were done through websites and the told experiences of others' first-hand experiences. Thus, I was able to compare and contrast onsite visits to online visits first hand.

Site Selection

Rich in both cultural and natural resources, DPNGs offer visitors opportunities for quality first-hand experiences. I selected the Sheyenne National Grasslands and the Little Missouri National Grasslands for this study because of their vast differences in topography and resources, and then conducted systematic sampling by (1) multiple site visits to the Sheyenne grasslands, (2) online Internet experiences to the Little Missouri grasslands, and (3) off-site interviews. Public access to sites resulted in access to visitors; whereas, access to non-public sites resulted in interview opportunities with public and private-sector individuals who influence resource conservation.

I chose to conduct on-site interviews on or near the two North Country Trailheads, and the Hankinson camping area of the Sheyenne National Grasslands because these were logical visitor entrances and exits to the trails. My experience with the Little Missouri Grasslands was solely through the internet, reviewing Forest Service, Park Service, and nature conservancy groups, or individually owned websites. Off-site interviews were conducted in local communities, such as Lisbon, Hankinson, Fargo, and on the North Dakota State University campus. Six participants had personal experiences on both the Sheyenne National Grasslands and Little Missouri National Grasslands, thus were able to provide comparative data.

Besides visitors, tangible historic and operational sites, such as grave sites and old structures, were target locations for this study. Site selections included resources with and without public access. I moved about freely in public access areas to conduct interviews or make observations; whereas, I sought permission from DPNGs supervisors, organizational managers, and land owners to gain access to non-public property to collect data. Because cattle association groups did not respond to my requests to provide their view point for this study, holes about their values or interests exist for further research to fill.

Data Collection

Ongoing data collection and analysis followed a cyclical process of eight phases. As Figure 2 shows, the phases are 1) selection of research problems and questions, 2) site selection and data sources, 3) gaining access to and entering the field, 4) maintaining field relationships, 5) observations and data collection, 6) sampling, 7) analyzing data, and 8) conclusions.

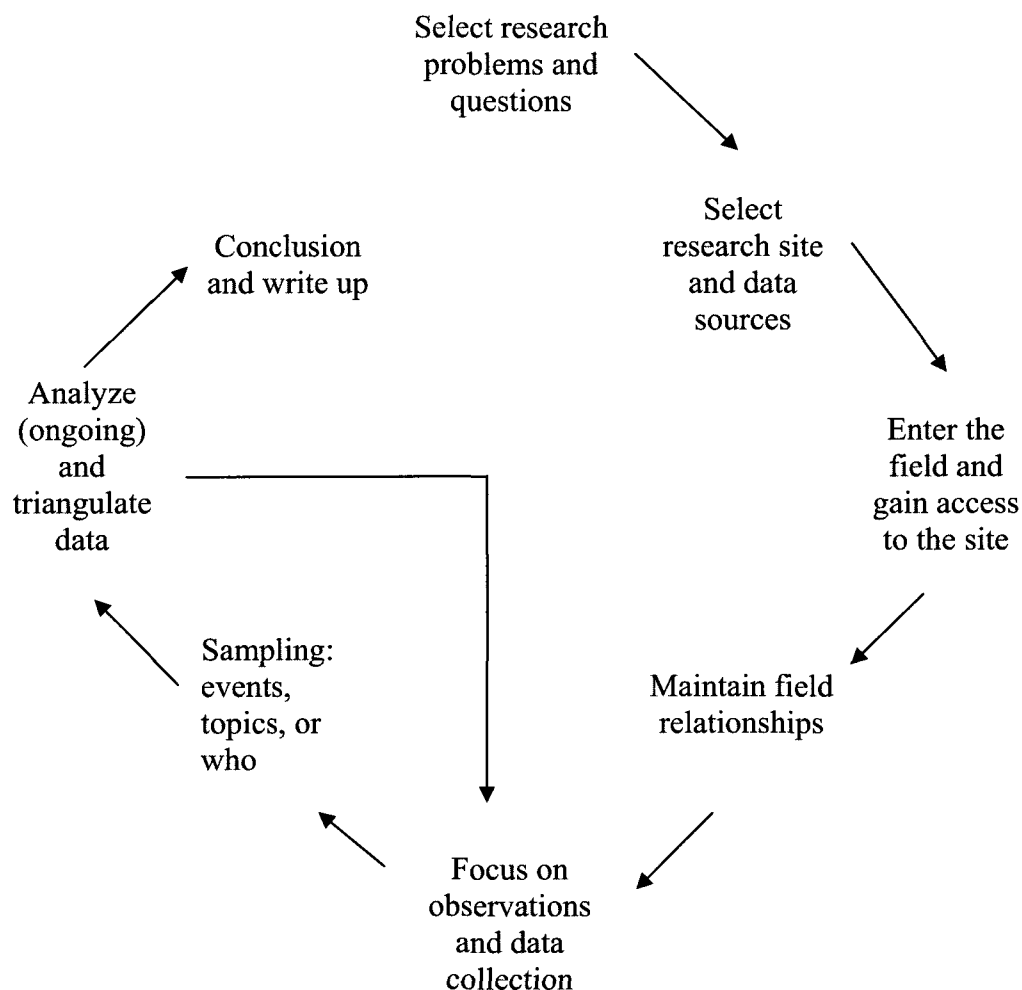


Figure 2: Steps in the Cyclical Process.

Both formal interviews and informal, impromptu interviews along with observations took place during the research process. My methods were one-on-one or small groups (exploration) in-depth interviews, and field observations (descriptive). Interviewing aspects include (1) study purpose and assurances, (2) interview questions, (3) an ice-breaker, and (4) probing techniques. Formal interviews were accompanied by written assurances and written participant acknowledgement. Although some respondents declined to be recorded, the majority agreed to their interview being digitally recorded. Informal, impromptu interviews occurred when seeking local information, such as

directions. In some cases, the respondent volunteered unsolicited information relevant to the study, which I then recorded in a field book. In another case during my initial visit to the west trailhead of the Sheyenne National Grasslands, a couple who arrived after me approached to talk. Not intending to conduct a formal interview at the time, key comments and observations were recorded in a field book for future use. Thus, the information gathered dealing with their perceptions as visitors were later very relevant to the study. Whether digitally recorded or not, a written record was made during each interview when possible and I identified myself to interviewees.

Questions I asked of respondents were generally open-ended, using probing techniques to clarify details of what participants have to say (Krueger & Casey, 2000; Taylor & Bogdan, 1998). I asked broad questions to start, and then moved to specific questions (Appendix B). I asked, for example, central questions about:

1. Importance (value) of natural resources,
2. Importance (value) of cultural resources, and
3. Natural resource and cultural resource policy sources.

Because some respondents appeared to have a minor discomfort during interviews, I attempted to “break the ice” at some point with humor, typically at the start of the interview process. When interviewing a small group, I followed an opening question with an invitation to a response from any group member by stating, “Start when the spirit moves you.” By allowing anyone to make the first comment, respondents appeared to relax, resulting in favorable interviewing procedures. During an informal interview, I observed a level of discomfort from a first time visitor on site who was unsure of regulations regarding off-leash hunting dogs. When the visitor asked me for permission to release the dogs, my

response was, “Sure, just as long as you pick up the poop.” The respondent later stated he saw the “North Dakota humor” he heard about. Thus, the “ice-breaker” set the stage for a brief, but fruitful discussion, and I was able to gather data on first visit time experiences.

Once I began interviews, probing techniques were typically easy, particularly when respondents had the time and passion to relate their experiences to me. In some cases, little probing was necessary because the information flow from the respondent provided much information. In other cases, I chose not to probe in a direction respondents were not going because the focus of the interview is on the respondent’s interpretation of their own experience.

Although not advised by some qualitative researchers (Schwandt, 2001; Corbin & Strauss, 2008; Taylor & Bogdan, 1998), I did occasionally ask close-ended questions as a follow-up probing technique for two reasons: to verify what respondents had to say and to keep the interview flowing. With this technique, I simply mirrored or paraphrased a statement back to respondents who, in turn, answered with an affirmation or a clarification to their original statement. Thus, I was able to validate respondents’ experiences. During the following interview segment, for instance, a respondent not only gave affirmative responses to a paraphrase of prior statements on land use, but also added clarification and provided an opportunity for further probing:

Interviewer, “. . . and you said pressure from the ranchers [**respondent “Right”**] possibly from [**respondent “Yup”**] the government and [**respondent “Yes”**] . . . is this what I am hearing you say?”

Respondent, “Right. But the Forest Service maintains it well enough I guess the pressure from the ranchers would be the negative side.”

Secondly, I found that a well placed close-ended question is to the interview process as priming a cistern pump is to drawing water from a well. Once primed, a pump needs continuous operation to keep water flowing, or else one must take the time to re-prime. At times, I referred back to a description or definition, followed by a close-ended question as a primer. This descriptive referral was particularly helpful to discussing different values people place on natural or cultural resources when respondents had difficulty relating to a resource. Thus, keeping the pump primed and operating, so to speak, kept the information flowing.

I supplemented information gained from participants to corroborate what they have to say about grassland management policy by reviewing documents. Documentation analysis is an unobtrusive method of data collection (Taylor & Bogdan, 1998), and I was able to access most documents in electronic format on the Internet or in local newspaper articles. I was able to obtain most maps from GPNGs officials. Finally, direct observation of participants as a visitor or as a colleague provided me insight into behaviors when dealing with both culture and natural resources (Blumer, 1969). My recording methods were field notes and digital recordings for later transcription, and I stopped collecting data at the point of saturation or when the data from multiple sources became repetitious (Taylor & Bogdan, 1998). For example, map inconsistencies mentioned by visitors were corroborated by scientists who conduct studies on national grasslands, and by comparing federal and state maps.

Data and Content Analysis

The Data and Content Analysis section includes subsections dealing with procedures of data analysis, Coding Methods, and Content Analysis. For data analysis, I

followed inductive procedures based on evidence in order to code interview and documentation data, and to capture and compare thematic categories (Glasser, 1992; Marshal & Rossman, 1999; Schwandt, 2001). Because abridged transcripts from digital recordings and notes were less time consuming than are unabridged transcripts, I used abridged transcripts (Krueger and Casey, 2000). My coding technique was a paper version of the “long-table” approach recommended by Krueger and Casey (2002). This is a system of cutting and pasting transcripts into themes or categories placed on a large board, and a computer-aided application to color code and categorize transcript quotes.

During the analysis development stage, I labeled emergent categories and established a systematic coding system (Figure 3) adapted from Krueger and Casey (2002) showing an example of the cutting and pasting process. Thus, I compared and contrasted responses to each broad interview question that resulted in themes from individual comments, such as frequency, specificity, emotion, or extensiveness.

Coding Methods

Open coding and axial coding methods were used for this study. Open coding refers to the process of opening interview transcripts to classify concepts (Corbin & Strauss, 2008), and I found open coding and labeling to be useful in the identification of concepts and categorical properties as the study progressed.

Axial coding was used to identify relationship based cause and effect. Axial coding refers to the process of analyzing open coding classifications (Babbie, Mouton, Vorster & Prozesky, 2008; Corbin & Strauss, 2008). In the analyses process, I considered a range of variability that were labeled and coded. I then selected central categories followed by triangulation of data and saturation as I developed a storyline. Triangulation refers to the

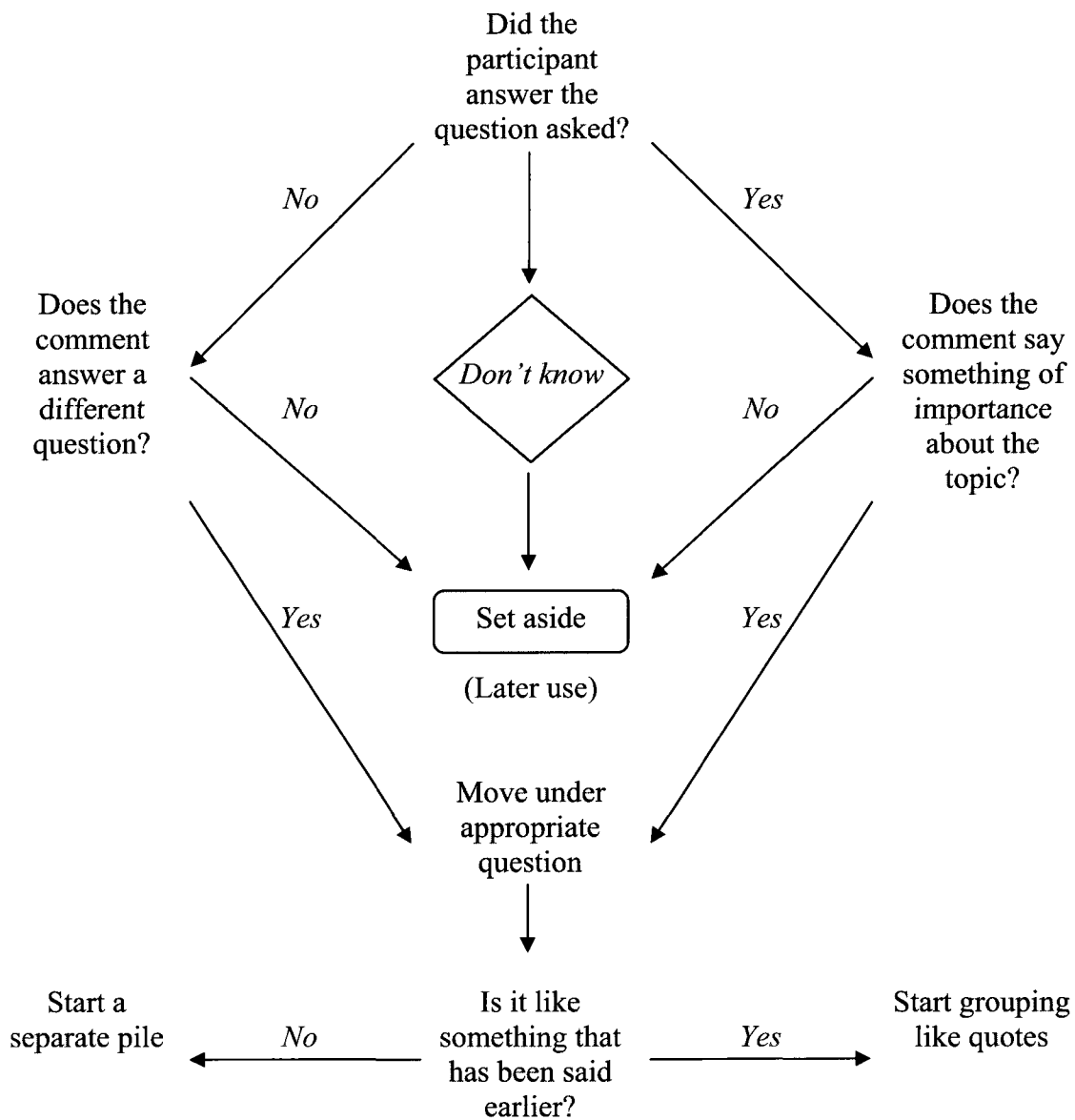


Figure 3: Analysis Technique.

process of checking multiple resources to validate conclusions or observations (Schwands, 2001). For example, multiple visitors observed inaccuracies (public and private land, and road use) on national grasslands area maps. Checking federal and state maps against visitor comments, and making personal observations led to the conclusion that some maps are inaccurate.

I used a systematic method of transforming concepts and data into categories. Color coding with color highlighting, color post-it tabs, and hand written notes in transcript margins were effective in helping me to categorize themes and subcategories. Mapping or drawing schemes also helped me to visualize relationship patterns between categories and subcategories.

Content Analysis

Content analysis was used to identify themes from interview data and from published material relating to the Dakota Prairie National Grasslands. For example, I identified an emergent theme of distrust of land management methods by Sheyenne National Grasslands agents through content analysis gained from personal interview transcripts and from a newspaper article.

Methodological and Ethical Issues

The Methodological and Ethical Issues section contains five subsections: Checks and Balances, Participant Protection, Trust, Ethical Considerations, and Limitations. My method of interviewing participants for data collection was overt, meaning that at no time did I attempt to hide my role as a researcher to help establish trust by interviewees. In some cases, impromptu data collection took place by way of informal interviews, when an informant volunteered unsolicited information, or when individual behaviors were observed. All documents, such as maps, regulations and policy, and organizational reports were accessible to the public.

Checks and Balances

The check and balance system in place was (1) the Internal Review Board, (2) review by a research advisor, and (3) peer reviews. It is the job of the Internal Review

Board to ensure the ethical use of research instruments and methods (Appendix A); whereas, progress reviews by my research advisor and trusted peers helped me to keep the study ethically sound. The research advisor listened to interview recording, read interview transcripts, and checked consent documentation for accuracy. Finally, I consulted research guidelines and standards on ethics set forth by both the American Psychological Association (APA) and American Sociological Association (ASA).

Participant Protection

Participant protection in terms of privacy and confidentiality was paramount to the integrity of this research project. Participant-to-participant (groups), and participant-to-researcher trust levels was central to collecting my data (Babbie, Mouton, Vorster & Prozesky, 2008; Fowler, 2002). To address the issue, I made written releases available for all participants to sign. Because participants tended to respond differently in small groups than they do in private interviews (Taylor & Bogdan, 1998), probing responses helped overcome this issue, particularly when group pressure on a respondent was apparent. For example, opposing views on pre-built or camp-as-you-go campsites emerged during one group interview that were clarified through the interview process. At the conclusion of any group interview, I restated confidentiality assurances.

Participant confidentiality was maintained by documented letter-number combinations to code each individual participant's interview responses. Each individual letter-number was written on an interview form that included the interview date, and location. Participant-signed consent forms were kept separate from interview forms, as were digital interview recordings. All records were kept in my home under a double lock system: office door and a filing cabinet.

Trust

Another methodological issue deals with trust. Four criteria to trustworthiness (Figure 4) are: credibility, transferability, dependability, and conformability (Schwandt, 2001). Credibility deals with assurances that the reconstruction of lived experiences is accurate. Transferability deals with “case-to-case” similar information from researcher and findings. Dependability has to do with documented data that is traceable, and conformability deals with accurate interpretations of data. These criteria add credence to the quality and validity of qualitative inquiry to the study (Schwandt, 2001). As a social scientist, I had an inherent responsibility to ensure trustworthy research results, which was just as important to being aware of credibility issues among multiple visitors.

Criteria		Parallel to
Credibility	↔	Internal Validity
Transferability	↔	External Validity
Dependability	↔	Reliability
Conformability	↔	Objectivity

Figure 4: Trustworthiness Criteria.

Credibility issues adversely affecting outcomes were suspicion, distrust, and secrecy. Suspicion and distrust between private land-owners and government agencies may inhibit people in the private sector from dealing with government workers on natural or cultural issues on national grasslands (Cantrill, 1999). Furthermore, there exists mistrust between indigenous groups and conservation scientists involving cross-cultural stereotyping as well as differing decision-making styles (Milius, 1998). Mistrust and suspicion inhibit communication between parties who have an interest in common

resources. Thus, trustworthiness was an important factor to consider during this research project.

Ethical Considerations

Ethical considerations deal with moral responsibility and obligations to society (Blackburn, 1996; Taylor & Bogdan, 1998). Political considerations deal with political forces that influenced methods of inquiry (e.g., access, questions and topics) (Schwandt, 2001). Finally, my observations and open-ended interviews were designed to gather data rather than to manipulate or harm informants.

Confidentiality of cultural resource sites included both ethical and political aspects of the research project. In addition to policy on conservation, Forest Service and Park Service laws pertaining to protected sites often included regulatory procedures on confidentiality. Guardians of resources are well aware of individuals who are willing to obtain or destroy resources illegally, and confidentiality helps protect resources from theft and vandalism (Bushbaum, 1994; National Parks and Conservation Association, and University of Colorado, 1994), and is driven by both ethics and politics.

Ethical issues of qualitative research methods include informed consent, participant confidentiality, and risks to participants. A written consent form was provided to all participants to explain research purpose, confidentiality, the voluntary nature of participating, non-tangible benefits, and the option to stop the interview. The consent form was read to each participant. The participants had an opportunity to ask for clarification, or explanation. A written consent agreement form was provided to each participant to sign and date. Some participants refused to sign the consent agreement form, but gave a verbal agreement with the knowledge that they could terminate the interview at any time.

Limitations

As a method of research, participant observation has two inherent problems: possible deception, and difficulty of the researcher in separating self from those being observed (Babbie, Mouton, Vorster & Prozesky, 2008; Goulet & Miller, 2007). Self-awareness and peer discussions about the methods process helped to mitigate deception and maintained separation from the participants. Besides discussing methods with peers and being aware of what my role as a researcher was, I make sure to identify myself and my role to all DPNGs visitors.

Besides location, a limited budget, and time constraints had an impact on my ability to conduct on-site visits to both the Sheyenne and Little Missouri National Grasslands. Therefore, all on-site visits took place on the Sheyenne grasslands over summer and fall seasons from 2006 through 2009. I interviewed identified visitors and scientists who had experiences on the Little Missouri National Grasslands off-site. As a researcher, having an on-site experience was paramount to this type of study. As an alternative, I made online visits to the Little Missouri National Grassland using electronic media in order to compare on-site visits with online visits to national grasslands. The implications were far reaching in terms of distant environmental education, economic resources for potential visitors, or wildlife identification and data collection.

Flexible time management was necessary for interviewing participants because of multiple visits to the Sheyenne National Grasslands over the period of three years. Seasonal weather restrictions (winter blizzards), location and distance, and part scheduling for meeting participants were important factors in managing time. Interviews were as short as fifteen minutes and as lengthy as approximately 90 minutes.

CHAPTER 4. FINDINGS

The personal experiences reported by visitors to the Sheyenne National Grasslands and Little Missouri National Grasslands constitute this chapter on findings. Each visitor has a story to tell about their real and expected experiences of their visits to the grasslands, navigating their destinations, and interactions with other people. Besides conducting personal interviews and participant observations as a visitor, analysis of documents such as maps, publications, and reports, provide a holistic view of this study. There are five subsections to the section on findings: the Values Visitors Have on Natural Resources; the Values Visitors Place on Cultural Resources; Federal Policies; Other Emergent Themes; and Conclusion.

Values Visitors Have on Natural Resources

The physical, geographic differences between the Sheyenne National Grasslands and Little Missouri National Grasslands are noticeable, but the values people place on these two regions may appear to be not so different at least on the surface. All study participants, for example, recognized the importance or value of natural resources on Dakota Prairie National Grasslands (DPNGs) in utilitarian terms, such as hikers, campers, and horseback riders for recreation. Under the surface, however, two differing viewpoints about land management emerge: preservation of the Sheyenne National Grasslands and conservation of the Little Missouri National Grasslands.

Analysis reveals four dominant patterns connecting visitors to the Sheyenne National Grasslands and Little Missouri National Grasslands: aesthetics; solitude; social networking and recreation; and land use. In the context of this study, aesthetics is an expressed appreciation for the beauty of place. For some visitors to the Sheyenne National

Grasslands, there was appreciation for gentle rolling hills, and changes from native prairie grasses to deciduous trees, such as bur oaks (*Quercus macrocarpa*). Other visitors reported their appreciation for the beauty of the changing leaves and snow covered ground during fall and winter seasons. Visitors to the Little Missouri National Grasslands described how the diverse landscapes of buttes gave way to canyons, and how rolling hills gave way to forests of juniper (*Juniperus* spp.). Better known as being part of the badlands, visitors to the Little Missouri National Grassland reported that they enjoyed the scenery at sunset or sunrise.

The second aspect of being on DPNGs most often identified by visitors was their value of solitude: a sense of being alone with nature. For example, when I asked one individual about her recollection of traveling through the Sheyenne National Grasslands, she quipped, “I like the fact that I am out there alone, in the wide open spaces.” For hikers who have a goal of being away from crowded areas, there was a preference of selecting their own campsite over established campsites. Others enjoy quiet time and space to self-reflect. Thus, these visitors made choices to be in solitude for individual reasons, and they value that time alone.

There are many aspects of recreation on the national grasslands including hiking, camping, and horseback riding that are well documented. Formal horseback riding clubs or organized bird watching groups, for example, may have by-laws, newsletters, or published magazines. For some visitors, recreation (geocaching, or Jeeping and four-wheeling), is less organized. Geocaching refers to a game of hunting and finding hidden objects, or finding landmarks, with use of global positioning system (GPS) technology. Jeeping and

four-wheeling refers to off-road vehicle activities on the national grasslands, typically with All-Terrain-Vehicles (ATVs) or Jeep Wranglers (Jeepsters).

For geocachers and Jeepsters, there are little formalities, a developing ethics code, and a network of information among like-minded recreationists. Individuals often rely on social networking more than they do formal organizations to gain or give information about their particular interests (Therborn, 2008). Thus, a social network exists between formal recreation groups and informal recreation groups.

Finally, for range scientists the underlying value differences between the Sheyenne National Grasslands and Little Missouri National Grasslands deal with land use: preservation of the Sheyenne National Grasslands and conservation of the Little Missouri National Grasslands. For visitors, there was recognition for preservation and ecosystem maintenance on both National Grasslands.

Aesthetics

When talking about the value of the national grasslands, much of the responses were two words to a brief sentence in length. For instance, one first-time visitor to the Sheyenne Grasslands stated, “It’s quite remarkable out here. Quite lovely.” For another, the motivation to make annual trips to the Little Missouri National Grasslands, and then on to the Little Big Horn region was simply stated, “I go because of the beauty.” Still another frequent visitor to the Little Missouri Grasslands offered this, “It is just awesome out there. A really beautiful place to be.” Finally, another participant stated simply, “I love the scenery, the beauty, the wildlife. I could just, just sit for hours.” All first-time visitors stated they look forward to a return visit to the grasslands.

Further probing revealed more details about aesthetics, such as the landscape of certain tree stands, “marsh” areas, or wide-open spaces. Others reported a preference to specific times of day (morning, evening), or seasons (fall, spring). One visitor to the Sheyenne National Grasslands reported her least favorite and most favorite seasons stating:

I like to visit the grasslands early in the spring since that is when life is returning to nature. Plants start to show their colors, animals are getting out into the sun. It's like – a new birth. To me, fall means death. Things are dying, losing their leaves. Animals go into hiding, hibernation or whatever. So I spend my time here in the spring and early summer.

One response to my probing about comparing the Little Missouri National Grasslands to the Sheyenne Grasslands National Grasslands, the response was typically to the point with this summation: “I prefer the Little Mo because of the aesthetics. Pure beauty.”

Another respondent echoed the first by stating:

There's more to offer aesthetically than Sheyenne. There is also more recreation. The terrain is much more interesting. More plant and animal types than at the Sheyenne.

As one visitor to the Little Missouri National Grasslands reflected:

It's just awesome out there. A really beautiful place to be. I like to sit out there in the evening, just as the sun goes down. I like to watch the wildlife. They're fun to watch, ya know? I just love watching wild animals. I like to sit for hours and watch the little critters go by. The experience is so . . . relaxing.

Aesthetics were clearly an important factor for all visitors to the DPNGs, who described their experience on the grasslands. For some visitors, a favorite location to be was a place of solitude and privacy - a place of their own.

Solitude

Visitors who value solitude find various methods to achieve their goals. In some cases, they avoid other people wherever possible, are willing to relocate to a place of solitude when others arrive, and go to great intuitive lengths to keep others away. All

visitors who reported their want of solitude stated they understood that DPNGs are for the public, however somehow felt the grasslands to be personal and private.

One respondent on the Sheyenne National Grasslands was very specific about how she kept other visitors at a distance:

I know for me, one of the things I like is isolation. It's Quiet. Very seldom do you come across people. Ya know, it's not like you're at a state park. I have a son-in-law in Colorado, and you go to the park in the mountains or anywhere, you know there's people every place. And that's what's nice about the grasslands, it's nice. And if there is anybody, and you want to get away, you can just drive a half mile down the road and never see anybody. When we go in by the cattle, [people] go in the other way. For some reason, they go all the way around. They don't go in the way we go.

One hiker on the Sheyenne National Grasslands who learned about the North Country Trail from reading a *Backpacker Magazine* stated:

Might as well go check it out, and I really appreciate getting out into nature, and getting away from all the city noise, and into, I don't know, just beautiful nature. And solitude and quietness of it is what really attracts me to it. And just the closeness of the region, it's a major emphasis that brought me here specifically.

For some visitors, there is a preference of the Sheyenne National Grasslands over the Little Missouri National Grassland for the want of solitude. One visitor said:

We went to the Little Missouri Grasslands once. Too many people. Way too many. I'll never go back again. I can spend an entire day at the Sheyenne and see nobody else. I like it that way. The fact there was too much people. I read about the people who hike out there, the people who go through there. I talk to someone who goes out there. He hikes through there, does some camping. I see it on the web. Too many people.

On the other hand, the lack of visitors may result in researchers collecting little data from visitors. One Forest Service employee, for example, reported spending a Saturday on the Sheyenne National Grasslands for the purpose of surveying visitors. Her dilemma was that she saw no visitors to survey. Interestingly, I was not far from the employee's location

on the same day, and had the same results: no visitors to survey. I can, however, report that I enjoyed the solitude.

The sense of ownership, or connection to DPNGs was experience-dependent, and positive experiences on the grasslands may have resulted in visitors bonding to nature. For some visitors who experience isolation in a positive way, there is satisfaction of belonging; whereas, for others there is an expressed sense of stewardship. One visitor said:

It's like someone going to the top of a mountain alone. It's their mountain. For that time, they own it. I feel the same way on the grasslands. It belongs to me.

Another visitor explained her connection to the Little Missouri National Grasslands based on her personal experiences by stating:

Yah know, I would donate dollars to the Little Mo to help keep it up. Because I have been there. Not that I have much to give. Ten or 20 dollars say. I wouldn't give any to the Florida Everglades; although, I am sure it's beautiful at the everglades. I'm sure their ecosystem needs some form of protection. I have never been there, so I would not donate anything to them. I somehow feel connected to the Little Mo because I've been there.

Solitude was an important aspect of personal experiences for DPNGs visitors. In some cases, visitors were willing to go the great lengths to be alone with nature. For some visitors, finding another private spot away from newcomers was an option. Other visitors were creative in keeping others away by staying where others may not want to go, such as among livestock.

Social Networking and Recreation

Recreation observed within this study was by and large individual hikers, campers, nature observers, and small groups of horseback riders. However, in all cases, social networking was clearly evident, either by word of mouth or by online platforms, such as dedicated websites or "blogs" as opposed to Twitter, Facebook, or Myspace. For the purposes of this study, social networking refers to individual actors (called "nodes") who

have social relationships (called “ties”) with other actors (Faust, 2007). The focus of social networking is on nodes and the network rather than on organizations (Faust, 2007).

Nodes often belong to organizations with ties to nodes in other organizations who share information about their activities on the grasslands together. For example, an individual (node 1) who is a member of a geocache group developed a social relationship (tie) while camping on the National Grasslands with another individual (node 2), who is a member of horse riding club. Through this relationship (tie), information about a new hiking trail was passed from one individual to the next, who then passed on the information to a third individual (node 3) who is a member of a four-wheel driving group. Furthermore, the four-wheeler (node 3) passed on information about the hiking trail to a friend.

At the micro level, limited social networking appears to occur when someone has their own secretive place to share with only a select few individuals between networks, not trusting anyone outside this network of knowledge. One individual expressed a fear of outsiders coming to and not preserving the Sheyenne Grasslands. She went on to explain:

Well, ya know if you tell people you know, they’re going to respect it, and the cows. If the general public goes out there and they pitch a tent and start a fire, there’s going to be some trouble. Not that I’m not willing to share it with anybody, I mean it’s there for anybody who wants it. I mean I’d rather not.

At the macro level, social networking exists in the world of geocaching, or hiding caches at geographic locations for geocachers to find. Geocaching roots go back some decades or so as a game of hide-and-seek using global positioning system (GPS) technology reliant upon geographical mapping coordinates to hide and find caches. These caches often contain items to trade among geocachers, as well as a log book to record the

date, time, and any items taken or left in the cache box such as an ammunition can, coffee can, or other sealable containers.

Most popular to geocaching are small, flat, metallic “travelbugs” (Figure 5) that are individually numbered (Groundspeak, 2000). One geocaching game objective is to hide a “bug” at one geographical location with instructions to have it “travel” to different geographical locations, while being tracked through the Internet to its final destination.

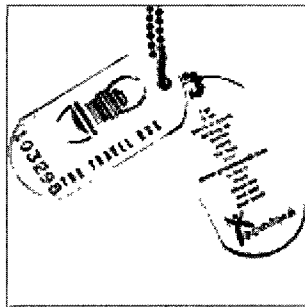


Figure 5. Sample Travel Bug Used in Geocaching.

A cache may be in the open at an easily accessible area; whereas, another cache may require hiking and climbing to reach. Internet web platforms, such as Groundspeak.com, exist to announce cache coordinates, and website memberships are maintained; however, information by word of mouth between visitors on the grasslands does occur. For myself, I learned of a geocache site from an interviewee who told me of the cache location; although, the information was unsolicited. Using a hand held GPS, I was able to locate the cache at N46° 23.959, W097° 28.072. Among articles in the cache were a log book, a toy figurine, and a new survival whistle in the original packaging (Figure 6). I made further inquiries about geocaching online and in person that resulted in other “finds” on the National Grasslands.



Figure 6: Geocache.

Jeepsters and other four-wheelers often rely on social networks to find the best off-road trails to suit their recreational needs. While some responsible drivers remain on approved trails, others don't. Problematic to the environment on the National Grasslands

are those who are either uninformed about off-road policy or ignore policy, choosing to leave designated roads and trails. Responsible drivers attempted to rely on Forest Service maps to know approved roads are, where Forest Service property ends, and where private property begins. Although visitors relied on accurate maps to show where approved trails are, the most common observation by visitors to the grasslands had to do with inaccurate or incomplete maps. As one visitor to the Sheyenne Grasslands pointed out:

We had a hard time finding the entrance. We had to drive to Lisbon to the Forest Service office to buy a map. And the route numbers and road descriptions do not match the map. They need to update their maps.

A visitor to the Little Missouri National Grasslands said:

We were on what was an approved trail according to the Forest Service map. We ran into a rancher who was not too happy we were on his property. We saw no signs about private property, but went by what was on the map.

The latter example is one of a driver trying to stay on approved roads. However, one couple who visited the Sheyenne National Grasslands to go Jeeping related:

We don't use no maps. We have more fun finding our way around the grasslands just exploring. Only he don't let me drive out here anymore because I almost slid into the river.

We just get in the Jeep and hit the first dirt road. And make sure it's dirt all the way. We'll meander all day.

Some visitors rely on signage on or near the grasslands for direction or information.

Although signage is indeed present, some interpretation of those signs is required. For example, a sign depicting an outline of field glasses relates to a point of interest, and in some cases a trailhead. When asked how easy or difficult it was finding a Sheyenne National Grasslands trailhead, one respondent stated:

Wasn't easy it all. There are no clear signs from the road. Had to ask a couple of hunters out there. They had a map. Once I seen how to get there, it was easy. I

could get very upset if I could not easily find one of the trailheads without a detailed map. That's not right.

Campsites are an item of discussion within social networks. When mentioned, the topic of campsites could result in a lively, and at times, animated discussion with differing opinions between visitors. Some visitors like the notion of established and permanent campsite locations; whereas, others like to establish temporary campsites. Often mentioned by hikers and campers was a presence of trash left behind by others. Thus, the common agreement among visitors was the observation and dislike of trash on grasslands left behind by visitors or land users.

For one respondent, there was a preference of one campsite type over another:

Ah, if I can, I would go to the prebuilt ones. Out here there are not a lot of pre-built ones that I am aware of. So then it's finding a spot that's appropriate for a campsite but is not going to be impacted by the campsite itself. It's sort of the rule I guess. The leave-no-trace-behind aspect. In some places, there are sorta established campsites that are like group campsites, I actually have the same feeling as far as having to go to a park and having a campsite where you've got 20 other people sitting around if you're trying to get away from the whole, um, busy environment, as opposed to a site that has been established for only a couple of individuals, or somethin' like that. In that case, only reason I prefer it is because it's already there, I can't really cause any additional changes to what's goin' on there.

For another hiker, there is a preference for the temporary camp site:

Ah, I prefer it, actually, having the ah, to phrase it, the non-typical like set up – the set up campsite. Um just from the fact that I think the reason I try to get out here is having to kind of get away, and ah in a campsite that is ah like right next to you is another person, ya know at another campsite. Ah, um, I think I can appreciate where I can just go out anywhere and, ya know, be off the trail a little bit, and then I can stop wherever I want to and pick my own campsite, pick my own location, and I like that. I like the solitude of it.

For another visitor, permanent established campsites on national grasslands equates to environmental changes and tourist changes driven by economic needs of the Forest Service:

We wouldn't go there. I wouldn't go any more. Not out of spite or anything. I would rather remember it for what it is. But it's not what it was. Ah, because once you put it there, there's sprawl. They [Forest Service] think they can profit off this one, then let's put one down there, and It'll just continue, ya know.

Visitors often brought up the topic of trash, or garbage, left behind by users, such as hikers or campers, and local residents on the grasslands. Interestingly, I did find a couple of people who complained about trash left behind, however admitted to me that they did not remove trash they found; whereas, others were adamant about picking up and removing trash. One individual reported that when he and his family went hiking on the grasslands, they brought an empty plastic bag for the purpose of collecting trash along the trails. Based on observations by visitors, I put the notion of trash collection to the test: by taking a high school student aide on sort of an "artifact expedition" to the Sheyenne National Grasslands. We chose at random two different sections separated by approximately three miles, at approximately 100 square yards per section. Together, we were able to collect an unscientifically weighed seven and one half pounds of trash in a four-hour time frame. Included in our find were broken clay pigeons, spent shot gun shells and wads, plastic baggies, empty soft drink and beer cans, spent fireworks, napkins, and plastic ware. Within a few hundred square yards of the Sheyenne National Grasslands east trailhead were clay pigeon shards, scattered trash, a geocache site, and a possible artifact that appeared to be a buggy wagon seat mostly buried in the ground.

Land Use

All scientists in this study made a subtle yet important observation: land use management practices are different on the Sheyenne National Grasslands than are on the Little Missouri National Grasslands. These scientists point out that the differences are not always by design but by economic necessity, or in reaction to unwanted plant or animal

species. For visitors, the focus is on non-development of the Sheyenne National Grasslands as opposed to the development of the Little Missouri National Grasslands.

Land use practices may have once been similar for livestock grazers at the two National Grasslands; however, land use changes because of economic needs resulted in perceived political and economic differences. One scientist stated:

Ranching is big at the Little Mo. Ranching was big at the Sheyenne area, but many ranchers have had to plow to raise crops. Politically, those in the eastern part of the state are at odds with those in the western part. And some non-leasees are jealous of leasees because of the perception that leasees get a better deal.

One visitor echoed the scientist:

Maintaining the natural habitat is important to the region. Land owners depend on the grasslands. But because some of them could not make it a go with cattle, they plowed much of the land and began farming.

Finally, land use planning covers multiple resources on DPNGs. More importantly, as one scientist pointed out:

The Forest Service deals with two [management] plans. One is range land management, and the other is about oil, gas, and mineral extraction.

Range cattle and sheep are an integral part of maintaining National Grasslands, yet cattle and sheep were common topics during conversations with visitors, particularly first-time visitors who expressed surprise at finding cattle on national grasslands. For one scientist, the use of domesticated animals is succinct, “Cows are used as a *tool* while animals like sheep and goats are used to *improve* grasslands.” It was not uncommon to hear comments about present-day cows on the range in relation to what the range might have been like without the presence of cows. One hiker, for instance, stated:

At first I wasn't sure what to think of the cattle because I guess the impression of cattle is people. Sort of. But I later learned and realized that actually, if the cattle weren't here it would have been a bison or something like that.

For another visitor, being around cattle is a reason to visit the Sheyenne National Grasslands, stating:

I go out for the cattle. Ah, being able to walk out into the pasture with the cows, ah, interacting with them. It's just the landscape. It's quiet. We go out there and sometimes we don't hike in too far, ya know. But there have been times when I've been out there without him, and I go to the cows. I could just sit there and watch them for hours. It may sound insane, but I go out there for the photography too. I could go out there without my camera too, but I'm an animal person.

Preservation of the Sheyenne National Grasslands was paramount to all visitors to the Sheyenne Grasslands in this study, many of whom were adamantly opposed to any development. As one visitor to the Sheyenne Grasslands observed:

Well I think they're [natural resources] pretty important, um, just to preserve an area of public land that has this type of environment because, um, the grassland environment, there aren't so many of them necessarily. Um, there are actually some I think technically threatened species of plants in the area, and locally some probably only know populations of certain animals, so I think as far as that is concerned, it's important, and just to have an area of public land in a natural setting is, is important. Especially, um, open public lands in North Dakota. I mean we just don't necessarily run into quite so many anymore. I mean a lot of 'em are privately owned, so . . . that's my opinion.

Yet another visitor stated:

If you can still find a little place that's vast like the Sheyenne, I think that's great. Change is OK, but crowding in that change like the Little Mo, I think, are going to be problems. Keep the visitor centers and tourists at the Little Mo. Leave it [Sheyenne National Grasslands] the way it is.

For visitors to the DPNGs, aesthetics was paramount and solitude was secondary. Visitors value the beauty of place, and desire a place to be alone, and do this through recreation activities, such as hiking or camping. All scientists in this study and three visitors observed land use differences between the Sheyenne National Grasslands and Little Missouri National Grasslands.

Values Visitors Placed on Cultural Resources

The section on values has three subsections. First, Little Value, reports on the expressed lack of value for cultural resources compared to the value of natural resources. The History subsection presents findings on visitor connection to the past through cultural resources. The Cultural Resources Knowledge subsection reports on the knowledge level of grassland visitors.

Unlike natural resources, cultural resources are non-renewable with a management focus on protection rather than on wise use sustainability. Cultural resources relate to tangible resources, such as artifacts; whereas, heritage resources are intangibles, such as language, or an oral history. In the context of this study, the focus is on tangible resources.

Overall, visitors appeared to have more difficulty identifying and expressing their value of culture resources than they did natural resources. In relation to natural resources, respondents readily related their experiences, likes and dislikes, and expectations. On the other hand, in relation to cultural resources, respondents typically were more hesitant, appeared to think through their comments carefully, and their speech patterns slowed. In some cases, the volume of the responses was noticeably softer during discussions about cultural resources than they were during discussions over natural resources. In other cases, respondents were more animated as they related the value of natural resources than they were when they related the value of cultural resources. Thus, respondents in this study appeared to be relaxed when relating their experiences with natural resources; whereas, the same respondents appeared to be unfamiliar, or at times, nervous about the subject of cultural resources.

For the Little Missouri National Grasslands, the abundance of cultural resources is touted as an attraction for visitors. From Native American Indian artifacts to wall writings by members of the 7th Calvary, to Theodore Roosevelt's ranches, these resources are well documented. According to the Sierra Club (2000), much known cultural resources are on the Little Missouri National Grasslands; whereas, no such resources are reported to be on the Sheyenne National Grasslands. However, cultural resources identifiable to visitors on the Sheyenne National Grasslands were remnants of structures like known homestead sites, fire watch towers, grave sites, and wind mills. Forest Service maps confirm the presence of these artifacts that includes stage coach stop locations, yet interview respondents in this study were generally unaware of existence of many cultural resources.

When asked about the importance of cultural resources, one respondent said: "For historical perspective, I guess they are important. There are not many there that I am aware of." Furthermore, another respondent stated: "Oh, I dunno. Not important I guess. It's the natural resources that's important." Thus, among respondents, there were those who somehow recognized cultural resources as having some historical value; whereas, others were almost adamant that they find little value in cultural resources in comparison to natural resources.

Little Value

In comparison to natural resources, finding little value in cultural resources on the grasslands was prevalent to this study. When asked about the importance of cultural resources on the Little Missouri National Grasslands, for instance, one visitor stated:

They're not. Not really. I know there is a history of Theodore Roosevelt's ranch, Indian artifacts, and other stuff. But they are not nearly as important as the view. They are just not.

Another visitor further stated:

Not as important as a natural resource. If a plant goes away, that could affect natural resources.

For another visitor, there was an acknowledgement that cultural resources should somehow have value, but was unsure why by stating:

Ok, on a scale of 1 to 10, a 10. Can't say why they are important. They are measures of a physical history. An analogy would be looking over the Little Big Horn. It's a beautiful landscape. Knowing of the battle and death is nice, but the natural resource views are much more significant.

Still another mirrored the prior statement saying:

The view is, just awesome. Gorgeous. I'm sorry for the tragedy that happened at the battle [Big Horn] site, but the view is much more gratifying.

Another visitor acknowledged the importance cultural resource may have to the grasslands, stating:

To the Forest Service cultural resources are important. They use consultants, especially from tribes, such as the Blue Buttes. Very significant.

When acknowledging the response, I further probed asking how important cultural resources are to him specifically. His response was explicit: "The aesthetics are more important than cultural resources are." When asked to relate personal experiences with cultural resources on the grasslands, one respondent stated:

We don't go out looking for artifacts. I couldn't tell you if I would know if I saw an artifact. I think there's an old building, but I don't approach it. I don't look at maps, so I can't state for sure that it's on the grasslands. Ah, but um, but if I ever come across an old house or old building, I never go in. I think if it's on the property, they should stay. I know a lot of people think they should burn them down. They think that is more respectful than letting them deteriorate. But, ah, it might be my kids or my grandchildren that visit – it should be there for them. Let them return to nature on their own. You find an old barn out there or old homestead, don't restore it. Um, leave it, um, restoration for me can only go so far. I think you should leave it alone and let nature take its course.

For another respondent aware of past structures on and around the Sheyenne National Grasslands, the maintaining of cemeteries was more valuable than homesteads. When asked of his experience with finding past structures, he related that:

They have old homesteads out there. Usually find them if you go on the North Country Trail along there and some old cemeteries. I guess hundred to two hundred years old. Depending on each one. I guess the importance depends solely on the person that's interested in it or not. They're not a whole lot to see, really. I don't know. Cemeteries I think would be a good thing to keep for people to go and look back at dates and all. But I don't think it matters what the homesteads really, in my opinion. To me it's, I don't think it's that big a deal, except for the cemeteries as I said. There is nothin' there to see.

Once cultural resources were redefined and probing followed, visitors typically related to two culture resources factors: history and education. Some visitors reflected on what the grasslands may have been like prior to coming under Forest Service care. Others envisioned early pioneers or notables such as T. R. Roosevelt riding through the region on horseback. Still others visualize large bison herds of the past, or the lives of past travelers.

History

It was not uncommon for visitors to relate to the history of place through structures located on the grasslands. For one hiker, it was windmills; whereas, for another it was a prior fire watchtower, and for others it was a connection of the present with the past. For example, one second-time hiker related a difference between his first and second visit, and his experience with contact to horseback riders, stating:

Um. My second experience actually was a little bit different. I did see some horse riders again, I met their camp and then I met up with them, and then I almost thought of it in a past experience of of Teddy Roosevelt ridin' through the grasslands or something like that. So it was actually was sort of almost historical in what I seen, I guess.

When asked about personal experiences finding possible cultural resources on the Sheyenne Grasslands, one responded stated:

Well, granted, I didn't see much, of course I saw the windmills, but. I think it really cool and interesting to see, Um, what was here before, an', ya know and the different things that have come across this area, er this region. It gives an element of history, and ah I think it gives, ya know, like depth of the area, of it's previous history, and I think that's valuable in any state, ya know?

A companion hiker continued where the first left off by stating:

Yeah, I would agree that the cultural resources, um, of the ones that I know of anyways that's the thing but, I think existing cultural resources I think are important in, in the history and depth they give, I mean, um, you can tell why they would have a fire tower out where, where one's located, an' you could tell why they put it on top of a hill, and things like that, and I mean. If I know more about the history of it, I probably would actually be more inclined to say it's important, I mean . . . as it is, somebody may just say "Well, it's a couple piles of concrete" or somethin' like that.

Significant to the prior statement is an acknowledgement that knowing more about the history of place (cultural resources) equates to the possibility of grasslands visitors having higher value for these resources. Thus, informing the public about cultural resources on the National Grasslands may be important.

Grave sites on or near National Grasslands can hold a wealth of information about pioneers, families, and travelers of the Great Plains. Some grave markers provide information about a culture, family relations, and in some cases, cause of death. Whereas some grave markers relates information on dates of birth and death (Figure 7), others only show the deceased's initials (Figure 8).

Visitors to the Sheyenne National Grasslands who knew of grave sites felt that he saw no importance to cultural resources, except for graves. As one visitor said, "Cemeteries are important to the history of the place, I think."

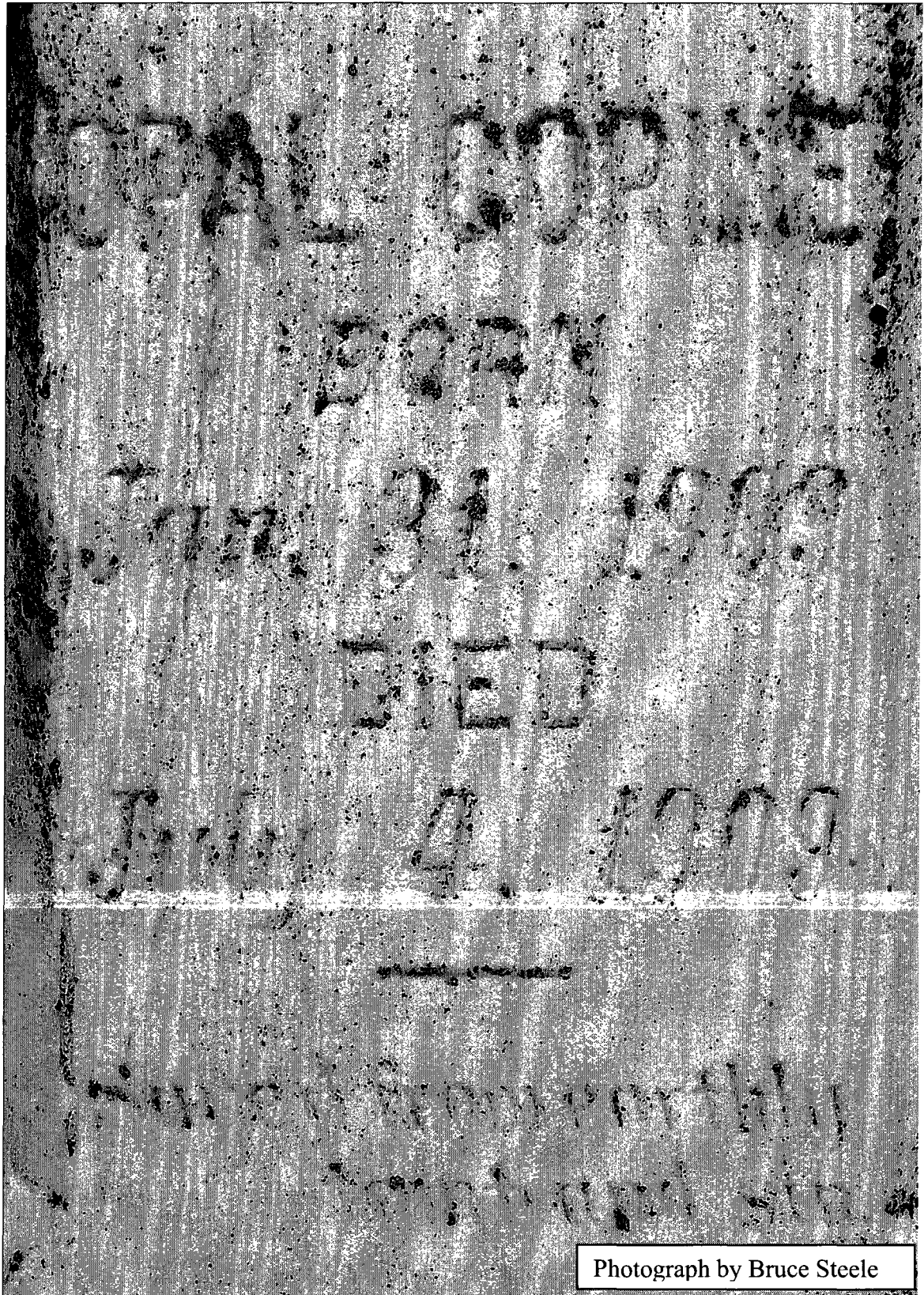


Figure 7: Grave Marker With Name, and Dates of Birth and Death of the Deceased.

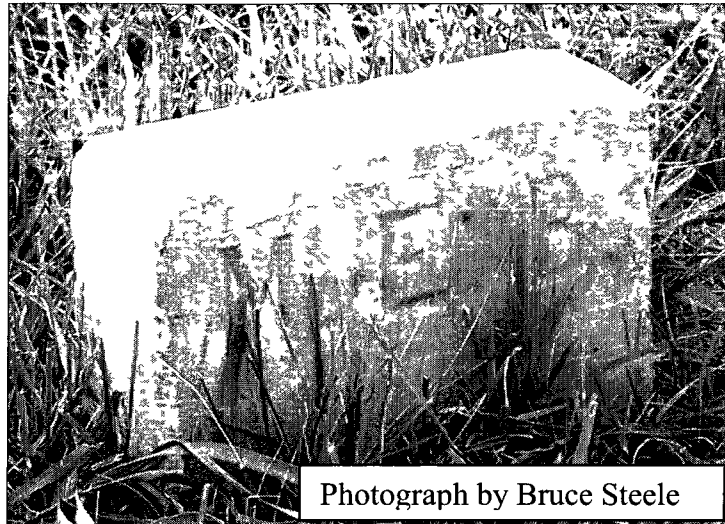


Figure 8. Grave Marker With Initials of the Deceased.

Cultural Resources Knowledge

Public knowledge about the history of the National Grasslands can be done through the lens of cultural resource artifacts - those artifacts left behind by people traveling through, homesteading, ranching, or farming. When asked if he recognized possible cultural resources at the Sheyenne Grasslands, one visitor stated:

Um, I think it's really valuable as far as, um, education and knowing what it was like way back when before there was a ton of farm land and that kind of thing around. Um, it's hard to imagine this after, ya know this . . . the way it is now.

One part time summer employee for DPNGs raised the question of better identification of cultural resources on the grasslands to a Forest Service supervisor. The informant related:

I mean I asked my supervisor why some of them places [homesteads] are not marked better. They should have good signs, ya know. He said "Aw, we don't do anything about them. They're not that important to us."

This statement about the importance of cultural resources begs the question: was the supervisor expressing a personal attitude or policy of the Forest Service? No matter the responses, personal attitude, or official policy, there is an impact on the outcome on cultural resource protection on National Grasslands proper.

The lack of training about culture resources extends to land users and scientists alike. For example, in reviewing a land use agreement with a leasee, I found no apparent evidence of a procedure to follow should a leasee discover cultural artifacts. The mission of the Forest Service is, after all, the wise use of its forest resources and protection of watersheds, rather than protection of cultural or heritage resources.

In some cases, cultural artifacts are not recognizable by scientists due to a lack of training on the subject. One scientist stated:

We were on the Little Mo for a controlled fire burn. One of our vehicles ran over two Indian circles [laughter], but did not disturb them. I think one of them was run over a second time – we did not know they were there.

Cultural resources presence and knowledge was secondary to visitors' personal experience with natural resources. The lack of knowledge, coupled with visitor failure to recognize tangible cultural resources is expected; whereas, the ignorance of scientists working on the grasslands is alarming.

Origin of Federal Policies

The third objective of this study emerged from preliminary interviews as a common theme: visitors' perception about the origin of federal policies concerning natural resources and cultural resources. All respondents expressed some understanding that federal policies regulate the management of natural and cultural resources. Few understood the root of these policies, (i.e., federal initiative or local interest groups). Thus, in sociological terms, policy is the connection to a responsibility of governing natural and cultural resources.

Visitors typically believed the origin of natural resource management policies were a result of grassroots efforts, or special interest groups. On the other hand, the same visitors typically believed the origin of cultural resources management were largely created

at the direction of the federal government. In other words, visitors' perceptions are that natural resources policies are driven from the ground up; whereas, cultural resources policies are driven from the top down, as Figure 9 depicts:

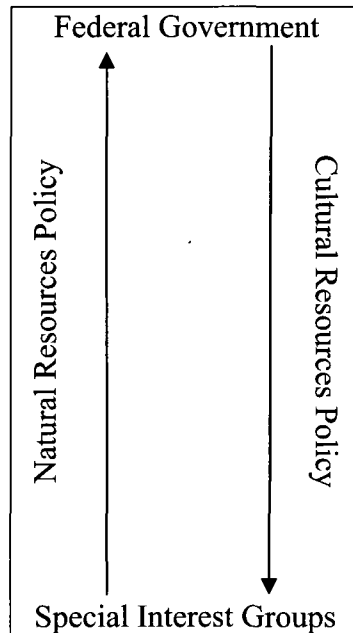


Figure 9. Direction of Natural Resources Policy and Cultural Resources Policy Formation.

Natural Resource Policy

All visitors believed that federal policies dealing with natural resources on DPNGs were driven by land-user needs and special interest groups, such as the Sierra Club. On the origins of natural resources policy, one visitor said:

I think starting with the stakeholders. The Forest Service is behind in their land management practices, but I think the land users have influence on policy. They influence policy by letting legislators know what they think and know about the range management.

One scientist echoed with:

Some ranchers don't care about wise use of the grasslands. They just let their cows out 'n use the natural resources. They take, take, take, and never give back. When things don't go their way, they'll [ranchers] just call their senator 'n he'll call the

Forest Service, 'n the ranchers win. So the ranchers, they're the ones, are ones who are not lookin' out for the land. The Forest Service is tryin'. They're fightin' politicians. I think it's ridiculous.

However, not all scientists in this study agreed with this assessment. For example, another scientist stated:

The Forest Service does not follow the latest land management practices. They have a model of managing natural resources that looks good on paper, but ranchers and scientists have the latest info. The Forest Service is so far behind on best management practices. Locals are far ahead scientifically, and the Forest Service does not follow their lead.

Thus, the perception exists that policy making decisions are born from grass roots efforts and pressure on policy makers.

Cultural Resource Policy

Much of the perception about cultural resource policy making is that policies come directly from the federal government with little local input; whereas, others believe there may be special interest input. On the one hand, typical comments from visitors were simple: "From Washington down," and "From the top down." End of discussion. On the other hand one visitor said:

I mean I would say a lot of things [policy] would have to come from, ya know, historical societies, things like that. Um for most cultural resources.

Another visitor echoed:

I think it depends on the cultural resource as well. Um, if it's a Native American resource, then its gonna be more of an interest to be protected by, ah Native American population. Um, and ah their basic legislation they put into it. I don't know what that is. But um, um, and then if you're talking about the windmills and that kind of thing, that's gonna be influenced by farmers, ranchers, cattle out there that use it as a vital resource. Um, and then some of the other cultural resources which are left behind, which are the fire tower, that kind of thing, it's, ah, there's not as much interest necessarily in maintaining that. 'Cause, ya know, there's nothing to use it for. Um, so I really think it depends on, on what the interests of

the groups are, ah, that are really going to motivate the protecting of the cultural resources in the area. Um, ya.

Simply put, visitors lacked knowledge about cultural resources on DPNGs, believing that federal policies are generated from the federal level of government, rather than local interest groups.

All visitors recognized the formulation of natural resources policy for DPNGs were generated from grassroots efforts [bottom up]; whereas, few understood the basis of cultural resources policy.

Other Emergent Themes

Trust and Conflict

Trust levels were dependent upon personal experiences, or perceived notions. In terms of land management, few individuals in this study had distrust of the Forest Service. Interviewees acknowledged the Forest Service has been doing the “best they can do under the circumstances,” recognizing the Forest Service had the responsibility for good land stewardship. Those who expressed displeasure with the Forest Service were in the minority of participants of this study. When asked about trail locations on the Sheyenne National Grasslands, for instance, one individual stated:

Depends if you want hiking or horseback. If hiking I hope you don't mind walking through the grass because the trails are not mowed, which the government is supposed to do. Typical government not doing their job.

In another example of displeasure, one special interest group member stated:

The Sheyenne grassland is in bad shape. Leafy spurge is a big problem that the Forest Service had a hard time controlling. Compare the Sheyenne to the Brown Ranch which is in great shape. They know how to manage their land.

On the topic of leafy spurge (*Euphorbia esula*), scientists in this study and special interest group members had differing opinions on control. Control methods included spray, sheep, and beetles. On spray, one respondent stated:

Just the ranchers I think would like to see it gone, but government prohibits . . . government agencies from spraying only so, so different, different kinds of chemical. The water table's high so they can only spray certain kinds so that doesn't help.

When asked about the use of animals for spurge control, one special interest group member stated:

The beetle probably work best, and spray somewhat. But sheep will never work. Sheep don't eat leafy spurge. It's not in their diet.

However, within two weeks of the interview with the special interest group member who did not believe that animal control was feasible, the Forest Service placed sheep on the Sheyenne National Grasslands.

Conflict occurs over land management practices and between land users and the Forest Service, as one participant observed:

Well I know the Forest Service tries to do things to improve it, and the ranchers don't like it say, well like spring turn out. We were in three and half late stage but, it was short, it was cool so they made a decision to wait a couple of weeks and the ranchers were upset about that. The Forest Service is just trying to protect and run a good for future for uses but the ranchers, not all of them, you know, a big percent thought just want, they don't care, they just want put their cows out 'n use the natural resources, the grass. So then they'll just call their Senator 'n he'll call the Forest Service, 'n the ranchers win. So the ranchers they're the ones are not the ones lookin' out for the land. The Forest Service is tryin'. They're fightin' politicians. I think it's ridiculous.

A special interest group member expanded on the prior statement, and said:

Too many [university] researchers have preconceived notions and do not listen to the land. The Forest Service allowed a rancher to do experimental heavy grazing for three days. Nine hundred head on 80 acres, three days only. Grass improved.

Drought production was down everywhere except on the experimental land. Researchers would have advised against it.

Problem is, many land owners THINK they know what best practices are. Some users take, take, take, and don't give back. There are some who work with the Forest Service and want to give back to the land, and there are others. Like I said who take and never give back. Don't try to talk with others who take from the land without giving back. They won't talk.

When discussing ranchers, one participant reflected on ranchers:

The majority are responsible land users. Others just don't seem to care. Throw their animals out there, use it. Ya know, then complain.

Expectations

An emerging theme during this research project is what National Grassland visitors expected and did not expect. It was not uncommon, for instance, to have first time visitors to the Sheyenne National Grasslands state that they did not expect to find cattle on the property. It was also not uncommon for first time visitors to express disappointment in not seeing more tall grass. One camper who visited both the Little Missouri National Grasslands and Sheyenne National Grasslands stated that she did not expect to have snakes near her campsites, but was surprised when she did see snakes. When asked about his experience on the North Country Trail (Sheyenne National Grasslands), one hiker reported:

Um, it was good. I wasn't expecting too many, expecting so many hills and trees, and I know that it's more in the east than in the west end, ah, ah, but ah, but was really impressed by what is, is was really beautiful, and way more cows than I expected. Um, but but what was really an enjoyable experience was the trail is is seems to be well put together in where it goes so there its not difficulty in trying to figure out where exactly where I'm at and don't have to figure out where I'm supposed to go but that's pretty clear. Um, and ah, I think that there's ah varying terrain and ah not where it isn't just static and ah ah boring as far as just flat and trails just going straight out. And I know it's different on the other end, but Um it keeps the interest in the variety a little bit more as well, but I'm pretty pleased with it actually.

The same hiker reported his “sharing water with the cows” because he had expected to find potable water on the trail, but found none. A review of Internet resources about the North Country Trail subsequent to the interview, however, revealed multiple websites stating that drinking water is not provided, and warned hikers to carry water.

Conclusion

If I asked visitors to show me something they valued most on DPNGs, I was shown natural resources. Thematic findings were 1) aesthetics, 2) solitude, 3) social networking and recreation, and 4) land use. If I asked visitors to show me something they least valued on DPNGs, I would be shown cultural resources. Although some respondents made the connection between cultural resources and history, many visitors were uninformed about what resources were on DPNGs. The common belief of visitors about resources policy making was that natural resources policy was most heavily influenced by land users, or local special interest groups; whereas, cultural resources protection policies were initiated at the federal level. Finally, visitor perceptions vary about how the Forest Service manages its natural and cultural resources.

CHAPTER 5. DISCUSSION AND IMPLICATIONS

Public awareness of natural and cultural resources on the National Grasslands is important to the public support of these resources, and little awareness of the resources being managed results in little value (Vadala, Bixter, & Hammit, 2006). Resources awareness happens through public education and site interpretations. As African environmentalist Baba Dioum (Microcosm, 2008) stated, “In the end we conserve only what we love. We love only what we understand. We will understand only what we are taught.”

On the national grasslands visitors appear to have heightened awareness of the natural resources, thus placing more value on natural resources; whereas, visitors appear to have little awareness of cultural resources resulting in little value placed on cultural resources. This section contains five subsection sections: Environmental Education; Cultural Resource Education; Integrating Disciplines; and Implications.

Environmental Education

The Education section is composed of three subsections: Environmental Education Policies, Teacher Confidence, and Location. The focus of environmental education is on the future, beginning with elementary education to develop students’ cognitive skills so they are able to make environmental decisions through practical applications and interdisciplinary studies (Arvai, Campbell, Vaird & Rivers, 2004; Lisowski & Williams, 2008; Paterson, 2009).

Environmental Education Policies

Federal education policies drive the delivery of education for American children including environmental education in the classroom and in the field; these education policies are clearly reflective of societal needs. The first education bureau at the national

level was established in 1838 for the purpose of statistical gathering, but a Federal Department of Education did not gain Cabinet-level status until October 1979 (Stallings, 2002). The Education Department achieved Cabinet-level status when two major factors influenced President Carter's 1979 endorsement: the education department budget was larger than any other Cabinet department and the strength of the National Education Association advocated for stronger federal-level say in education over states (Stallings, 2002).

Education policies of the mid-1960s addressed national social inequities such as poverty and a five-year 1965 Elementary and Secondary School Education Act became part of the Johnson administration "war on poverty" (Kennedy, 2009). In response to heightened world awareness on environmental issues, President Nixon signed into law the Environmental Education Act in 1970 under a new Office of Environmental Education (OEE) that was later to become the Department of Education (Baker, 2000). A purpose of the OEE was to provide grants for environmental education and professional teacher development (Baker, 2000). In 1990 Congress passed a new National Environmental Education Act that moved the task of environmental education from the Education Department to the U.S. Environmental Protection Agency (EPA) with a program goal of providing environmental information, education and training to the public (Baker, 2000). One of the reasons for moving the role of environmental education to the EPA was to give states more responsibility for delivery of environmental education (Baker, 2000). Expired in 1996, the National Environmental Education Act established the Office of Environmental Education within the EPA, limiting administrative full-time staff to no less than six and no more than 10 full-time employees (Baker, 2000). However, the Office of

Environmental Education remains functioning as a lead support agency to federal agencies (i.e., Forest Service, Bureau of Land Management, and Park Service) and as a resource to educators.

Twentieth-century presidents who wanted to leave a lasting legacy with Department of Education administration and policy appear to have targeted K-12 education for reform more often than not. President Johnson's Elementary and Secondary School Education Act for example went beyond the five-year intention and was continuously renewed up to the proposal and passing of the No Child Left Behind (NCLB) Act in 2001.

Test score standards under NCLB focused on mathematics and reading, giving less weight to the humanities, and activities outside of the classroom (Ravitch, 2010).

Furthermore, overall environmental education has been made part of science-specific curricula only (Ernst, 2007). Growing evidence supports the notion that a side effect of higher federal and state standards for student test results is that students spent less time outside with hands-on learning or exploring thus creating a "nature-deficit disorder" among students in public school systems (Louv, 2005).

In response to the NCLB Act, was the No Child Left Inside (NCLI) Act of 2007 that proposed an amendment to the 1965 Elementary and Secondary Education Act. The thrust of NCLI was to engage students in environmental education in order to reverse "nature-deficit disorder" (H.R. 30306, 2007; Louv, 2005). Drafters of the NCLI Act implied a direct correlation between "nature-deficit disorder" and classroom time, as opposed to less field time learning experiences. Although the NCLI Act proposal did not pass, interesting implications for environmental education emerged from research prior to

the proposal. One of those implications deals with mental and physical health of those who remain indoors compared to those who make a point of being outdoors.

The reported benefits of environmental education taking place outdoors are interesting. In stark contrast to outdoor experiences is the use of electronic sources such as the internet or other electronic media. Children in the U.S. under the age of 13 spend about 30 minutes per week of unstructured outdoor activities. Most of their time is spent at indoor sedentary media activities (Zaradic & Pergams, 2007). Declining self-confidence, increased obesity, and increasing behavioral issues reportedly is a direct result of indoor sedentary electronic activities (Aradic & Pergams, 2007). Outdoor experiences reportedly include an increase in cognitive function and ADD symptom reduction (Zaradic & Pergams, 2007).

Adults may benefit from time spent outdoors as well. Theodore Roosevelt, for example, reportedly had bouts of asthma; whereas, Roosevelt's Harvard classmate and author Owen Wister reportedly suffered from headaches, depression, and hallucinations (Brinkley, 2009). Both reported overcoming many of those symptoms by spending much of their time in the outdoors (Brinkley, 2009). The immediate family of Joe Kennedy, Sr., as another example spent much time sailing and learning the nature of the sea (Kennedy, 2010). The implication is that beyond family bonding and character building, these sailing excursions were environmentally educational in terms knowing the nature of the seas.

Teacher Competence

School teacher competence levels in environmental education vary. In some cases, teachers take an interest in learning more about the environment to pass on to their students. Other teachers may not believe they are competent enough with curricula dealing

with the environment and are therefore reluctant to spend quality time teaching science material. Reasons cited by North Dakota educators for not teaching environmental sciences include lack of financial resources, time, training, and fear of being labeled as activists (North Dakota Department of Education, 1995).

Alternatives of hands-on field experience include bringing the field to the classroom and internet usage. This experience is accomplished by student-centered hands-on activities and discussions, and bringing resources to the classroom (Brookfield & Preskill, 1999; May, 2006). Zoos bring animals, snakes or insects into the classroom, and museums bring artifacts. On the other hand, field trips to zoos and museums that offer play-based and learning-based inquiry help children to learn by active participation discovery and exploration to enhance student learning, particularly in math and natural sciences (Henderson & Atencio, 2007). These field trips can be a regular part of classroom curricula (Henderson & Atencio, 2007; Rapp, 2005).

Besides heightened awareness of environmental issues, active participation in a hands-on learning environment in the field is a preferred learning strategy over in-class learning (Warren, 2008; Zaradic & Pergams, 2007). Two primary approaches to teaching are teacher-centered and student-centered (Hamilton-Ekeke, 2007). In the teacher-centered classroom environment, it is the teacher who leads the learning process through lectures, readings, showing, and telling. In the student-centered environment, the teacher facilitates student learning with practical, hands-on experiences (Hamilton-Ekeke, 2007). Research supports the hypotheses that student-centered environmental education programs conducted in the field are more effective than classroom-based teacher-centered learning (Harder, 1990; Kruse & Card, 2008; Volk & Cheak, 2003; Ward, 2008). For example, Hamilton-

Ekeke (2007) conducted a pre-test and post-test comparison with three groups of 40 randomly selected students. One group was taken into the field to learn about ecology, a second group learned ecology in the classroom only, and the third group was not taught ecology, but did have prior knowledge about ecology. The group with hands-on field experience outperformed the other two groups at the post-test (Hamilton-Ekke, 2007).

For teachers who feel a lack of environmental education, federal agencies such as the EPA, non-government organizations (NGOs) and volunteer groups have written environmental education curriculum for K-12. The Council for Environmental Education (CEE) works with state and local agencies for both classroom and field-based projects. Examples of such projects are Project Wild and Project Learning Tree. For the field, the focus of Growing Up Wild is on exploration activities providing education kits and plans for teachers (Council for Environmental Education, 2010). Under “Project Archaeology” the Bureau of Land Management (2006) published an environmental teaching and learning guide meeting Nevada state education standards for writing and listening. Finally, the Bureau (2002) published “Las Aventuras Salvajes: Explora Tus Terremps Public” (Wild adventures: Explore your public lands) thus acknowledging a non-English language population.

An increasing number of public K-12 schools systems are creating ways to learn about environments through active participation. One example comes from the Broward County School District in South Florida in the aftermath of the 2005 Hurricane Wilma where an uprooted 60-foot non-native ficus (*Ficus altissima*) tree caught the attention of a school board member (Hines, 2010). The ficus tree, as it turned out, lacks the root structure to remain secure during strong winds. Realizing the potential damage to school

grounds by non-native plants, the school board member led an effort for a school district Environmental Strategic Plan. This board-approved plan included the prohibition of non-native plants on district school property and led to the interactive environmental education of 255,000 students (Hines, 2010).

Some postsecondary institutions are finding ways of providing innovative environmental education field experiences to their students. At a private Colorado college geology students take “one class at a time” over three and half-week periods (Community College Week, 2007). During the course of study, students are in the field, where their hands-on learning experiences take place on site at Rocky Mountain National Park (Community College Week, 2007). At the University of Oklahoma, the Botanical Society holds field trips to provide learning experiences in a natural environment (Uno, 2007). These activities allow students to be with faculty members in an informal environment, and help to facilitate modifications to student academic planning. Furthermore, positive field trip experiences helped with goal improvement to recruit students into botanical studies (Uno, 2007).

Cultural Resource Education

Three subsections on cultural resources education focus on policy, culture, and tools and technology. Federal and local policy coupled with professional management practices has been somewhat restrictive in terms of specialization. Cultures have had differing approaches and reactions to cultural education. Finally, tools and technology such as electronic positioning systems and mapping tools have been developed as useful learning tools.

Policy Impact on Education

Cultural resources education is typically discipline specific, such as in Anthropology and Archeology (Bevitt & Minor, 1995; Glave & Stoll, 2007). Problematic with educating the public on cultural resources is that there is little agreement on how to manage and protect these resources, and for sociologists the topic of managing cultural resources is often left to archeologists (Wang, Anderson & Jakes, 2002; Write & Roher, 2002) who rely on data taken after the fact rather than on first hand information (Ferraro, 2002). Clearly, all Forest Service employees who conduct field work could have cultural resource recognition and protection training specific to the location where they do their jobs. This in-service cultural resource training recommendation was the result of an attitudinal study of 490 Forest Service employees (Conner, Hartig & Christensen, 1993). For research scientists who visit National Grasslands, cultural resource identification training may help to mitigate inadvertent damage to on site cultural resources as revealed in the Findings chapter. Furthermore, agricultural historians and rural sociologists can contribute greatly to the field of cultural resources management training.

The United States lacks legislation for archaeological artifacts on private lands, there is no central authority for the preservation of artifacts, and artifact protection at state-levels is inconsistent (Elia, 1993). Moreover, for existing cultural resources, there is an on-going debate about restoration or no restoration of these resources (National Association for Interpretation, 2010). Finally, there are instances where land sacred to Native Americans is also valuable to other non-native interest groups for recreation and environmental education, resulting in litigation procedures to protect sacred lands

(Freedman, 2007). Thus there is a need to formulate consistent policy about cultural resources found on private and public lands.

In addition to cultural resource protection policies, laws pertaining to archeological sites often include regulatory procedures on confidentiality. Guardians of these resources are well aware of individuals who are willing to obtain or destroy resources illegally. Researchers complain that the lack of baseline data on cultural resources information hinder park managers in doing their jobs (Bushbaum, 1994; National Parks and Conservation Association, & University of Colorado, 1994). Confidentiality regulations can block archeological resource interpretation to the public in general, but confidentiality also protects these resources from theft or vandalism (Bushbaum, 1993; Write & Roher, 2002).

Cultural Responses

Cultures interact with nature differently, approach cultural resource education differently, and ultimately those cultural differences impact visitor experiences to National Grasslands. While Native American cultural education intertwines environmental education, Euro-Americans have a much different understanding of their heritage (Freedman, 2007). For Blacks, researchers Glave and Stoll (2006) suggest that a collective memory of forest-based labor experiences keep many African-Americans from pursuing forest-associated recreation activities.

Cultural and heritage education curriculum standards vary from state to state, and appear to be in some cases one-sided in attempt to minimize or avoid controversy (Crafton, 2009). Select groups, names and events in U.S. history may be ignored such as the Black Panther Party, Malcolm X or Wounded Knee, and these omitted individuals and events are

often part of cultural experiences that may be the foundation of heritage (Crafton, 2009). On the other hand, environmental justice issues such as the impact on poor air water quality or toxic waste may have on low economic residence provides the opportunity to integrate environmental education with cultural education (Greenwood, Manteaw, & Smith, 2009). Short of national standards on cultural education, inclusion of this information is vital to accurate information provided by the Forest Service to visitors on the National Grasslands.

Tools and Technology

Maps and digital technology such as Geographical Positioning Systems (GPS) are some of the tools and technology available to resource managers. Geographic information for visitors on the National Grasslands is somewhat limited to state road maps or Forest Service maps, and interpretive maps offered by some visitor centers, kiosks, or heritage centers are poorly designed (Bailey, Burns, Elmes, & Smaldone, 2007). As noted in the Findings chapter, some visitors to the National Grasslands did not trust maps and cited inaccuracies, and others used maps sparingly. Well designed maps integrating environmental information with geography and important cultural aspects of National Grasslands could increase an understanding of place and history, thus increasing a visitor connection to place.

Geographical Positioning Systems in the form of geocaching is a likely learning tool in the field, historic sites, or museums (Barry, 2008). The Forest Service has the potential of creating a scavenger hunt on the National Grasslands by giving positioning coordinates of important natural habitats, trail heads, or observation points. In partnership with government and non-government agencies in ND the Tesoro Corporation use Forest Service grant funds to develop a picket guide for travelers called the “Passport to North

Dakota History” published in 2009. The guide provides information on the DPNs and state and national parks and national historic sites. Included in this guide are telephone numbers to obtain information and streaming video on wildlife viewing, camp sites, first people sites, fur-trade area sites, and settlement era sites. Encouraging visitors to document GPS coordinates to these sites would add an interactive aspect to site visits.

Digital technology for K-12 learners is becoming increasingly important for the integration of information about nature. Green and Hannon (2007) point out that “Children are establishing a relationship to knowledge gathering which is alien to their parents and teachers” (p. 38). This technology includes hand-held computers allowing the viewing of live stream feeds from National Forests and other geographic locations. Although some learning is associated with the virtual visit, there may be learners who would prefer reading about the grasslands from resource stewards rather than watching a live feed on the internet. Live camera-feed viewing of national grasslands lacks credibility because online viewing omits senses such as taste, smell, and touch.

Integrated Environmental Education Model

On the national grasslands the education emphasis is on the sustainable environment rather than the connection to local or cultural resources. The Sheyenne National Grasslands trail heads has signage to educate the public on topics such as endangered species identification and general information on the environment but no mention of the relationship to the local culture. Good and best environmental education practices constitute this section on an integrated environmental education model.

Good and Best Environmental Education Practices

Whereas good environmental education practices are subject-specific, best environmental practices integrate subject-content (Figure 10). The study of a biome habitat

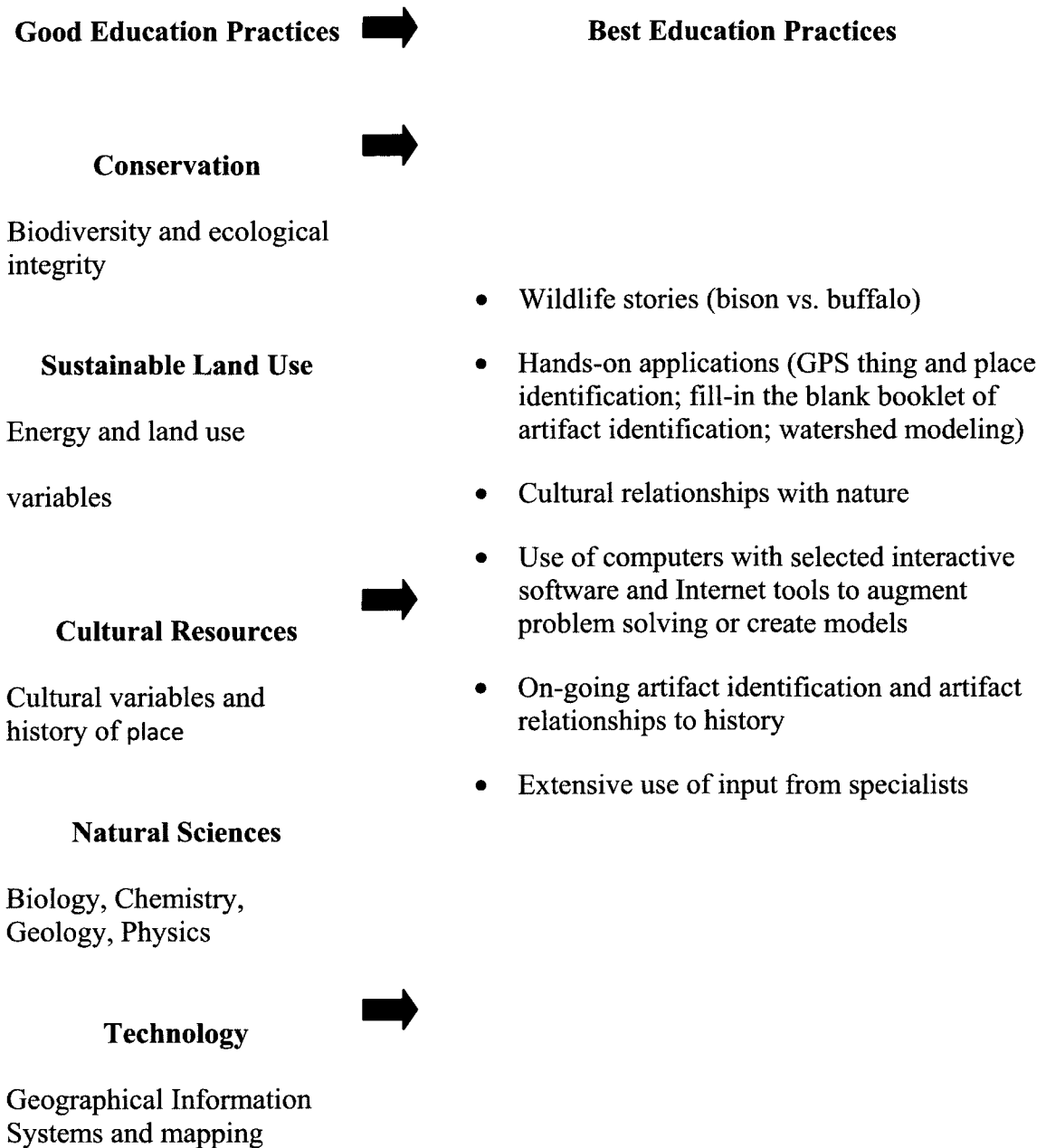


Figure 10: Good and Best Education Practices.

could integrate wildlife stories with the connection to the history of nature and place. A discussion of the Buffalo Commons (Popper & Popper, 1987) as a starting point to a Great Plains biome could integrate natural history, relate stories of cultural connections to bison, and the relationship between brown-headed cowbirds (*Molothrus* spp.) and bison, and bird behavior in the environment (Lott, 2002). Myths or misinformation can be addressed through teachable moments in the environmental education process. For example, although bison differ from buffalo species (Lott, 2002) the distinction must be made between these two mammals when entering into a discussion about the Buffalo Commons. The integration of history of place though may be problematic because history may appear to be somewhat fluid.

Implications

The implications for managing natural resources and cultural resources on National Grasslands are important to the sustainable stewardship and protection of these resources. The relationship between people and natural resources is nature; whereas, the relationship between people and cultural resources is history. Another relationship worth comment is culture as the relationship between people and heritage. Although these relationships are not scientific revelations, a model of our national grasslands would look differently if natural and cultural resource policies were similarly valued (Figure 11).

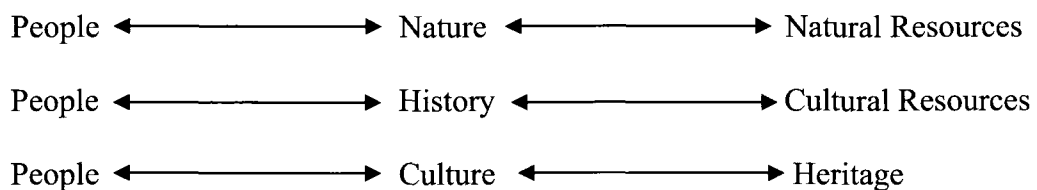


Figure 11: Relationships Between People, Nature, Resources, History, Culture, and Heritage.

The result of integrated resource management systems would have an impact of federal departmental missions and resource management practices, particularly on National Grasslands.

Although not part of this study, two hypotheses worth considering have to do with a personal connection to resources. Hypothesis one is the further removed from a culture by experience, the lower value the resource, and; two is the further removed from a natural resource by experience, the lower the value of the resource.

Mission Statements

Mission statements are part of the public administration element of federal agencies that reflect the values, and in some cases, the goals of each agency (Weiss & Piderit, 1999). Whereas the U. S. Department of Interior and the U.S. Department of Agriculture department mission statements are easily found on their home Internet websites, their vision statements are more difficult to find. Mission statements refer to the here and now; whereas, vision statements are future-oriented (Finlay, 1994). No matter the departmental mission, it stands to reason that the managed resources are the right fit for the department. In relation to the Little Missouri National Grasslands and Sheyenne National Grasslands, two prominent federal departments are the U.S. Department of Agriculture and the U.S. Department of the Interior. For grasslands management, the Forest Service appears to be a best fit under the U.S. Department of Agriculture's mission:

We provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management.

The National Park Service manages two Theodore Roosevelt National Park sites located on the Little Missouri National Grasslands. Thus, the National Park Service appears to be a best fit for the mission of the Department of the Interior:

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The U.S. Department of Agriculture and the U.S. Department of the Interior have bureaus of offices under each department with a mission statement that speaks to the purpose of the bureau or office. A review of Forest Service, Park Service, and Bureau of Land Management mission statements shows what those agencies do (Table 2). Thematic among the Forest Service, Park Service, and Bureau of Land Management is future generations. Common to the Forest Service and Bureau of Land Management is “. . . to sustain the health, diversity, and productivity.” The Forest Service speaks to forest productivity; whereas, the Bureau of Land Management speaks to public lands productivity. In comparison to the Forest Service and Bureau of Land Management, only the Park Service speaks to “historic objects and the wild life.”

For the Little Missouri National Grasslands, the Forest Service takes on a conservation role of old scarcities to control extraction of resources such as oil and gas; whereas, the Forest Service takes more of a preservation role in managing new scarcities on the Sheyenne National Grasslands such as water (Simpson, Roman, Ayres, 2005). Although mineral extraction on the Little Missouri Grasslands is compatible to the Forest Service mission, no such extraction is taking place on the Sheyenne Grasslands. A management implication persists throughout this study: a function of the Forest Service is to maintain national grasslands, but the Forest Service mission may not be the best fit for managing the Sheyenne Grasslands. Based on mission compatibility, it would be reasonable to suggest that the Forest Service continue to manage the Little Missouri

Grasslands; whereas, the Bureau of Land Management mission may be the best fit for Sheyenne Grasslands management. Interestingly, the Bureau of Land Management is responsible for more acreage than the National Park Service, but the National Park Service has more resources in terms of funding and personnel than does the Bureau of Land Management (U.S. Department of Interior, 2001).

Table 2. Comparison of Forest Service, Park Service, and Bureau of Land Management Mission Statements.

Forest Service	Park Service	Bureau of Land Management
<p>The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.</p>	<p>...to promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life 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.</p>	<p>It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.</p>

CHAPTER 6. CONCLUSIONS

A qualitative analysis was applied to in-depth interviews of visitors to the Sheyenne National Grasslands and the Little Missouri National Grassland, both parts of the Dakota Prairie National Grasslands under Forest Service management. The results identify the values visitors place on natural and cultural resources on and near national grasslands. An emergent theme early in the process was the perception visitors had about the origin of policies dealing with those resources. Beyond policy and practice, environmental education and cultural resources education and training impact the management of these resources.

Visitors to DPNGs expressed higher value for natural resources than they did for cultural resources. Visitor values on the national grasslands were primarily about aesthetics and solitude; whereas, little value was expressed about cultural resources. A review of the Forest Service mission statement revealed that Forest Service priorities are on natural resources rather than cultural resources. Thus, the very existence of cultural resources on DPNGs has been at risk of loss.

Environmental education curriculum and cultural education curriculum have been applied differently. Moreover, the focus on increased mathematics and reading standards in public school systems has resulted in far less academic emphasis in environmental education. The lack of environmental and cultural education and training has left visitors to the national grasslands unformed. The future of the DPNGs depends on heightened awareness of the environmental and cultural resources, based on an integrated education and model. This model is relationship-based between the environment and culture.

Limitations

Visitor experiences on national grasslands have been an interest of the Forest Service; however, few quantitative studies have been completed. The opportunity to interview visitors was important to the understanding of their personal experience on national grasslands. One of the limitations was a lack of visitors' knowledge of natural and cultural resources on the grasslands. Interview responses may have been different had visitors been grounded in an understanding of these resources.

Another limitation was about trust levels between interest groups, the Forest Service, and scientists. The focus of this mistrust was centered on land-use, from grazing practices to weed control. Land-management practices vary depending on current land conditions. Land improvement for grazing was most often a topic of discussion among scientists and some interest groups. Thus, a better understanding of the root causes beyond the acknowledgement of mistrust may be important to the future of national grasslands.

Future Research

Through the use of interviewing techniques, I was able to determine that first-time visitors to the Sheyenne National Grasslands did not find what they expected. Some visitors expected to see tall grass prairie and others did not expect to find grazing cattle. A pre- and post- satisfaction survey of visitors' may be useful to determining what their expectations are and if those expectations were met. Included in this survey could be statements concerning satisfaction with general grassland on-site information, usefulness of maps, trail markings, camp sites, and cultural resource identification, putting the Forest Service in a better position to address visitor expectations.

Follow-up studies on local teacher competence on environmental education could be useful to identify teacher needs in terms of environmental education. These studies could help determine the environmental education curriculum that teachers are or are not using and why. Furthermore, comparative analysis of environmental learning outcomes could add depth to the application of environmental education in the classroom and in the field.

BIBLIOGRAPHY

- Anyon, R., & Ferguson, T. J. (1995). Cultural resources management of the Pueblo and Zuni, New Mexico, USA. *Antiquity*, 69(266), 913-931.
- Arvai, J. L., Campbell, V. E. A., Baird, A., & Rivers, L. (2004). Teaching students to make better decisions about the environment: Lessons from the decision sciences. *The Journal of Environmental Education*, 36(1), 33-44.
- Babbie, E. R., Mouton, J., Vorster, P., & Prozesky, B. (2005). *The practice of social research* (8th ed.). Oxford: Oxford University Press.
- Bailey, H., Burns, R., Elmes, G., & Smeldone, D. (2007). Geointerpretation: The interpretive potential of maps. *Journal of Interpretation Research*, 12(2), 45-59.
- Barry, J. P., & Baker, J. A. (2008). Using geocaches to spread interpretive messages to new audiences. *The Interpreter*, 4, 6-9.
- Bengston, D. N., & Fan, D. P. (1999). Conflict over natural resources management: A social indicator based on analysis of online news media text. *Society and Natural Resources*, 12, 493-500.
- Bevitt, E. A., & Minor, H. L. (1995). *Directory of cultural resource education programs at colleges, universities, crafts & trade schools in the U.S.* U.S.: Daine Publishing.
- Blackburn, S. (1996). *The Oxford dictionary of philosophy*. NY: Oxford University Press.
- Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. NJ: Prentice Hall.
- Brinkley, D. (2009). *The wilderness warrior*. NY: HarperCollins.
- Brookfield, S., & Preskill, S. (1999). *Discussion as a way of teaching: tools and techniques for democratic classrooms* (1st ed.). San Francisco: Jossey-Bass.
- Bushbaum, M. J. (1993). Beyond ARPA: Filling the gaps in federal and state cultural resource protection laws. *Environmental Law*, 23(4), 1353-1374.

- Caldwell, L. K. (1987). *The administrative theories of Hamilton & Jefferson: their contribution to thought on public administration* (2nd ed.). NY: Holmes & Meier.
- Cantrill, J. G. (1999). Distrust of government at the end of the road: Finding selves situated in the hinterland place. *Communication Research Reports*, 20(3), 277-286.
- Clark, T. W., Willard, A. R., & Cromley, C. M. (2000). *Learning about natural resources policy and management*. New Haven: Yale University Press.
- Clark, T. W. (2002). *The policy process: A practical guide for natural resource professionals*. New Haven: Yale University Press.
- Community College Week. (2007, November 19). At Colo. College, a different way to learn – one class at a time. *Community College Week*. Retrieved from <http://www.ccweek.com>
- Conner, R. F., Hartig, T., & Christensen, H. (1993). Culture resources in the national forests: Perspectives from forest service employees. In A. W. Ewert, D. J. Chavez & A. W. Magil (Eds.), *Culture, conflict, and communication in the wildland-urban interface*. Boulder: Westview.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research* (3rd ed.). Thousand Oaks: Sage.
- Council for Environmental Education. (2010). Growing up wild. Retrieved from <http://www.projectwild.org/GrowingUpWILD.htm>
- Crafton, R. (2009). Evaluating state curriculum standards: A multicultural perspective. In J. Andrzejewski, M. Baltodan, & L. Symcox (Eds.), *Social justice, peace, and environmental education*. U.S.: Taylor & Frances.

- Dahrendorf, R. (1959). *Class and class conflict in industrial society*. Stanford, Calif.,: Stanford University Press.
- Dahrendorf, R. (1967). *Conflict after class*. NY: Humanities Press.
- Dahrendorf, R. (1988). *The modern social conflict : an essay on the politics of liberty* (1st ed.). London: Weidenfeld & Nicolson.
- Donovan, L. (2005, August 18). Ranchers cutting the rope: Considering new organization. *Bismarck Tribune*. Retrieved from http://www.farmlandranchguide.com/articles/2005/08/18/ag_news/live04/prt
- Elia, R. J. (1993). US cultural resource management and the ICUM Charter. *Antiquity*, 67(255), 426-439.
- Ernst, J. A. (2007). Teacher persistence in implementing EE: Implications for the interpretive community. *Journal of Interpretation Research*, 12(1), 51-65.
- Ewert, A. W., Baker, D. C., & Bissix, G. C. (2004). *Integrated resource and environmental management: the human dimension*. Wallingford, Oxfordshire, UK ; Cambridge, MA: CABI Pub.
- Ferraro, G. P. (2002). *The cultural dimension of international business* (4th ed.). New Jersey: Prentice-Hall.
- Finlay, J. S. (1994). The strategic visioning process. *Public Administration Quarterly*, 18(1), 64-74.
- Garbis, G. T., & Ihrke, D. M. (1996). Burnout in a large federal agency: Phase model implications for how employees perceive leadership credibility. *Public Administration Quarterly*, 20(2), 220-249. doi: 10496866

- Glasser, B. G. (1992). *Emergence vs. forcing: basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.
- Glasser, W. (1965). *Reality therapy, a new approach to psychiatry* (1st ed.). NY: Harper & Row.
- Glave, D. D., & Stoll, M. (2006). *To love the wind and the rain: African Americans and environmental history*. Pittsburgh, PA: University of Pittsburgh Press.
- Goulet, J. A., & Miller, B. G. (2007). *Extraordinary anthropology: Transformations in the field*. US: University of Nebraska Press.
- Green, H., & Hannon, C. (2007). Education for a digital generation. *Demos*. Retrieved from [http:// www.demos.uk](http://www.demos.uk).
- Groundspeak. (2000). Geocaching – the official global GPS Cache Hunt Site. Retrieved from <http://www.geocaching.com/track/faq.aspx#general>
- Hamilton-Ekeke, J.-T. (2007). Relative effectiveness of expository and field trip methods of teaching on students' achievement in ecology. *International Journal of Science Education*, 29(15), 1869-1889. doi: 10.1080/09500690601101664
- Harder, M. L. (1990). *Effects of formal and informal learning environments and achievement*. (Masters Thesis, North Dakota State University, 1990).
- Hardy, C., & Phillips, N. (1998). Strategies of engagement: Lessons from critical examination of collaboration and conflict in an interorganizational domain. *Organizations Science*, 9(2), 217-230. Retrieved from <http://www.jsstor.org/stable/2640354>
- Harvey, M. W. T. (2005). *Wilderness forever: Howard Zahniser and the path to the Wilderness Act*. Seattle: University of Washington Press.

- Henderson, T. Z., & Atencio, D. J. (2007). Integration of play, learning, and experience: What museums afford young visitors. *Journal of Early Childhood Education*, 35, 245-251. doi: 10.1007/s10643-007-0208-1
- Hines, G. (2010). *5 Steps to a greener school district*: Prakken Publications.
- Jarvis, T. D. (2008). *The national forest system: Cultural resources at risk*. VA: National Trust for Historic Preservation.
- Jordan, J. A. (2008). *Plains Apache ethnobotany*. USA: University of Oklahoma Press.
- Kemmis, D. (1990). *Community and the politics of place*. Norman: University of Oklahoma Press.
- Kennedy, E. M. (2009). *True compass: A memoir*. NY: Twelve.
- Krueger, R. A., & Casey, M. A. (2000). *Focus groups: a practical guide for applied research* (3rd ed.). Thousand Oaks, Calif.: Sage Publications.
- Kruse, C. K., & Card, J. A. (2004). Effects of a conservation education camp program on campers' self-reported knowledge, attitude, and behavior. *The Journal of Environmental Education*.
- Lee, A. J. (2004). Historians as managers of the nation's cultural heritage. *American Studies International*, XLII, 2-3.
- Leistriz, F. L., & Bangsund, D. A. (2001). Economic impacts of proposed changes in management of the Little Missouri National Grasslands in North Dakota. *Proceedings of the North Dakota Academy of Science*, 55, 11-22.
- Library of Congress (1983). *Culture conservation: The protection of cultural heritage in the United States*. WA: U. S. Government Printing Office.

- Lisowski, M., & Williams, R. (1993). Environmental education: Some global and local perspectives. *Nassp Bulletin*, 77(556), 72-78.
- Lott, D. F. (2002). *American bison: A natural history*. Berkeley: University of California.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin Books.
- MacNaghten, P., Urry, J., Nicholson, B., Song, M., & Parker, D. (1995). Towards sociology and nature. *Sociology*, 29(2), 203-221.
- Manning, R. (1995). *Grassland: the history, biology, politics, and promise of the American prairie*. NY: Viking.
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research* (3rd ed.). Thousand Oaks, Calif.: Sage Publications.
- May, T. (2006). [Review of the book *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*]. *The Journal of Environmental Education*, 37(2), 52-54.
- McKercher, B., & Cros, H. d. (2002). *Cultural tourism: The partnership between tourism and cultural heritage management*. NY: Hawthorn Hospitality Press.
- Meuninck, J. (1996). *Basic essentials: Edible wild plants & useful herbs* (2nd ed.). CT: The Globe Pequot Press.
- Microcosm (2008). *Baba Dioum*. Retrieved from http://en.microcosmaquariumexplorer.com/wiki/Baba_Dioum
- Milius, S. (1998). When worlds collide: Why can't conservation scientists and indigenous peoples just get along. *Science News*, 154(6), 92-95.
- Moore, K. (2007). *The American President: A complete history*. US: Barnes & Noble, Inc.

- Natural resource damages: A primer. 2008, retrieved from
<http://www.epa.gov/superfund/programs/nrd/primer.htm>
- Nebbe, L. L. (1991). *Nature as a guide: using nature in counseling, therapy, and education*. MN: Educational Media Corporation.
- No Child Left Inside Act, H. R. 30306, 110 Congress. (2007).
- North Dakota Department of Education. (1995). *Environmental education strategic plan*. ND: Department of Education.
- Paterson, J. (2009). Integrating environmental education. *Principal Leadership*, 10, 47-51.
- Popescue, R. (2008). No child outside the classroom. *Newsweek*, 151(6).
- Popper, D. E. & Popper, F. J. (1987). The Great Plains: From Dust to Dust. *Planning*, 53(12), 12-18.
- Ravitch, D. (2010). *The death and life of the great American school system*. US: Basic Books.
- Ritzer, G., & Goodman, D. J. (2004). *Modern sociological theory*. Boston: McGraw Hill.
- Schiffer, M. B., & Gumerman, G. J. (1977). *Conservation archaeology: a guide for cultural resource management studies*. NY: Academic Press.
- Schwandt, T. A. (2001). *Dictionary of qualitative inquiry* (2nd ed.). Thousand Oaks: Sage Publications.
- Scott, D., Fox, R. A., Connor, M. A., & Harmon, D. (1989). *Archaeological perspectives on the battle of the Little Bighorn*. OK: University of Oklahoma Press.
- Smith, S., & Wooster, E. (2000). *Aventuras Salvajes: Explora Tus Terremps Public*. BLM U.S. Department of Interior.

- St. Pierre, M., & Long Soldier, T. (1995). *Walking in the sacred manner: healers, dreamers, and pipe carriers--medicine women of the Plains Indians*. NY: Simon & Schuster.
- Stallings, D. T. (2002). A brief history of the United States Department of Education: 1979-2002. NC: Duke University.
- Stein, D. H., & Mankowski, E. S. (2004). Asking, interpreting, knowing: Conducting qualitative research in community psychology. *American Journal of Psychology*, 33(1-2), 21-36.
- Stevens, O. A. (1963). *Handbook of North Dakota plants* (3rd ed.). ND: North Dakota Institute for Regional Studies.
- Stoffle, R. W., Helms, D. B., & Austin, D. E. (1997). Cultural landscapes and traditional cultural proportion: A southern Paiute view of the Grand Canyon and Colorado River. *American Indian Quarterly*, 21(2), 229-249.
- Stubberndieck, J., Hatch, S. L., & Landholt, L. M. (2003). *North American wildland plants: A field guide*. Lincoln: University of Nebraska Press.
- Taylor, S. J., & Bogdan, R. (1998). *Introduction to qualitative research methods: a guidebook ad resource* (3rd ed.). NY: Wiley.
- Therborn, G. (2008). From Marxism to post-Marxism? NY: Verso.
- Turner, J. H. (1973). From utopia to where?: A strategy for reforming the Dahrendorf conflict model. *Social Forces*, 52(2), 236-244. Retrieved from <http://www.jstor.org/stable/2576377>
- Uno, G. (2007). The struggle for botany majors. *American Journal of Botany; Plant Science Bulletin*, 102-103.

- U. S. Bureau of Reclamation: Commissioner's Office of Policy (2002). Cultural resources management. Retrieved from <http://www.usbr.gov/cultural>
- U.S. Department of Interior, Bureau of Land Management. (2001). Our vanishing past: The crisis of cultural and paleontological resources on BLM lands. US: Department of Interior.
- U. S. Forest Service. (2002). The national grasslands story. Retrieved from <http://www.fs.fed.us/grasslands/text.htm>
- U. S. Forest Service (2008). Land areas of the National Forest system. Retrieved from <http://www.fs.fed.us/land/staff/lar/2008/lar08index.html>
- Vadala, C. E., Bixler, R. D., & Hammitt, W. (2006). A public's awareness of regional parks and park management agencies with implications for management-oriented interpretation. *Journal of Interpretation Research*, 11(2), 59-64.
- Volk, T. L., & Cheak, M. J. (2003). The effect of an environmental education program on students, parents, and community. *The Journal of Environmental Education*, 34(4), 12-25.
- Warren, G. (2008). In-class learning to match for inspiring trips. *Times Educational Supplement*.
- Wang, G. A., Anderson, D. H., & Jakes, P. J. (2002). Heritage management in the U.S. Forest Service: A Mount Hood National Forest case study. *Society and Natural Resources*, 15, 359-369.
- Wishart, D. J. (Ed.). (2007). *Encyclopedia of the Great Plains Indians*. Lincoln: University of Nebraska Press.

Write, J. R., & Roher, L. (2002). Between a rock and a hard place: Archeology in a national recreation area. *CRM Online*, 25(3), 18-20.

Wubbolding, R. E. (1988). *Using reality therapy* (1st ed.). NY: Perennial library.

Yellowtail, T., & Fitzgerald, M. O. (1991). *Yellowtail, Crow medicine man and Sun Dance chief: an autobiography* (1st ed.). Norman: University of Oklahoma Press.

Zaradic, P. A., & Pergams, O., R. W. (2007). Videophilia: Implications for Childhood Development and Conservation. *The Journal of Developmental Process*, 2(1), 103-144.

APENDIX A: IRB REQUIRED DOCUMENTS

Institutional Review Board

North Dakota State University
Office of Sponsored Programs Administration
Research & Technology Park
Fargo, ND 58105 231-8908(ph) 231-8098(fax)

for the protection of human participants in research

RECEIVED
AUG 05 2011

Office of
Sponsored Programs Administration

Request for Certification of Exempt Status

Instructions: Complete this form online, and save the file to your hard drive or disk, using a unique name. Submit completed form, with signatures, and any applicable attachments, to the IRB Office by campus mail, by fax to 231-8098, or as an email attachment to Teryl.Gross@ndsu.nodak.edu (follow up with a signed and printed copy).

Section I: General Information: (Boxes will expand as text is added, tab to next box)

Title of Project:	Efficacy of Culture Resource Management: A Dakota Prairie National Grassland Study		
Principal Investigator: (NDSU faculty or staff member)	Bruce R. Steele		
Department: Natural Resource Management	Campus address: Ceres Hall 331		
Phone: 701.231.8543	Email address: Bruce.Steele@ndsu.nodak.edu		
Co-Investigator:			
Department:	Campus address:		
Phone:	Email address:		

Section II: Investigator's Assurance:

The signature(s) below certify that 1) all information provided is complete and correct; 2) the research will be conducted according to the protocol approved by the IRB, in accordance with NDSU policies and procedures applicable federal, state and local laws regarding the protection of human participants in research; 3) all protocol changes will be prospectively reviewed by the IRB; 4) all research-related accidents, injuries, complaints, problems or breaches of confidentiality will be promptly reported to the IRB; and 5) any significant new findings that may affect the risks and benefits to participation will be reported in writing to the subjects and the IRB	
Principal Investigator signature, and date	<i>Bruce R. Steele</i> July 27, 11
Co-investigator signature, and date	<i>Ray A. Hochman</i> 7-30-04
Chair, Dean or Director signature, and date	

-----FOR IRB OFFICE USE ONLY-----

IRB Protocol #:	<i>HS05019</i>	Project qualifies for exemption. Category #	<i>2</i>
IRB Signature:	<i>Teryl Gross</i>	Date:	<i>4/4/05</i>
Comments:			

bruce.stelle@ndsu.edu, 03:57 PM 04/04/2005 -0500, IRB certification - have a good study!

To: bruce.stelle@ndsu.edu
From: Teryl Grosz <teryl.grosz@ndsu.edu>
Subject: IRB certification - have a good study!
Cc:
Bcc:
Attached:

4/4/05
Tery

April 4, 2005

Bruce Steele
Dept. of Natural Resource Management
331 Ceres Hall

**Re: IRB Exempt Protocol "Efficacy of Culture Resource Management: A
Dakota Prairie National Grassland Study" Protocol #HS05019**

Co-investigator(s) and key personnel:

It has been determined that the referenced protocol qualifies for IRB exempt status (category #2) in accordance with federal regulations governing human participant research (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). A copy of your Request for Exempt Certification Form is enclosed for your records.

No further reporting to the IRB is required for this project unless you decide to make a change in the protocol. All changes to a protocol must be prospectively reviewed by submitting a *Change in Protocol Request Form* to the IRB office.

Thank you for complying with NDSU IRB procedures, and best wishes for success with your project.

Sincerely,

Teryl Grosz, MS, CIP
Director, Institutional Review Board
Office of Sponsored Programs Administration
Room 130, Research Park 1, 231-8908
<http://www.ndsu.nodak.edu/irb>

Printed for Teryl Grosz <teryl.grosz@ndsu.edu>

1

NDSU North Dakota State University

Title of Research Study: Visitors' Values of Natural Resources and Cultural Resources: Dakota Prairie National Grasslands

Dear Research Participant:

My name is Bruce Steele. I am a Doctoral candidate in **Natural Resource Management** at North Dakota State University, and I am conducting a qualitative research project to determine management practices of both cultural resources and natural resources on our national grasslands in North Dakota. The focus is on the value a diversity of stakeholders place on these resources. It is our hope, that with this research, we will learn more about best resource management practices on the grasslands.

Because you have a connection to the national grasslands in North Dakota, you are invited to take part in this research project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

It is not possible to identify all potential risks in research procedures, but we have taken reasonable safeguards to minimize any known risks. Common risks of social/behavioral research include loss of confidentiality.

You are not expected to get any benefit from being in this research study. However, benefits to other stakeholders of national grasslands are likely to include advancement of knowledge about the value users of the grasslands place on its resources.

It should take about 15 to 45 minutes to complete the interview about your experiences on Sheyenne or Little Missouri National Grasslands. An audio recording device may be used during the interview along with field notes for accuracy. The recording and notes will be transcribed later. You will receive no compensation for your participation in the research project.

We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study, we will write about the combined information that we have gathered. You will not be identified in these written materials. We may publish the results of the study; however, we will keep your name and other identifying information private.

This study is anonymous. That means that no one, not even members of the research team, will know that the information you give comes from you.

If you have any questions about this project, please contact me at 701-231-8543 or Bruce.Steele@ndsu.edu. You may also contact my advisor, Gary Goreham, Department of Sociology, at 701-231-7637, or Gary.Goreham@ndsu.edu.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU

Institutional Review Board (IRB) at 701.231.8908, ndsu.irb@ndsu.edu, or by mail at:
NDSU IRB, 1735 NDSU Research Park Dr., Fargo, ND 58105.

Thank you for your taking part in this research. If you wish to receive a copy of the results, please let me know by email.

NDSU

North Dakota State University

Title of Research Study: Visitor' Values of Natural Resources and Cultural Resources on Dakota Prairie National Grasslands

Documentation of Informed Consent:

You are freely making a decision whether to be in this research study. Signing this form means that

1. you have read and understood this consent form
2. you have had the consent form explained to you
3. you have had your questions answered, and
4. you have decided to be in the study.

Signature of person agreeing to take part in study

Date

Printed name of person agreeing to take part in study

Signature of researcher explaining study

Date

Bruce Steele

Printed name of researcher explaining study

APENDIX B: ABRIDGED INTERVIEW DATA

Interview Date: _____ Sequence Number: _____

On-site Location: _____ Off-site Location: _____

Value of Natural Resources

R1: It's absolutely gorgeous at the Little Mo. I visit just about every summer now.

Ya know, I would donate dollars to the Little Mo to help keep it up. Because I have been there. Not that I have much to give. Ten or 20 dollars say. I wouldn't give any to the Florida Everglades; although, I am sure it's beautiful at the everglades. I'm sure their ecosystem needs some form of protection. I have never been there, so I would not donate anything to them. I somehow feel connected to the Little Mo because I've been there.

R2: It's quite remarkable out here. Quite lovely.

R3: I like to visit the grasslands early in the spring since that is when life is returning to nature. Plants start to show their colors, animals are getting out into the sun. It's like – a new birth. To me, fall means death. Things are dying, losing their leaves. Animals go into hiding, hibernation or whatever. So I spend my time here in the spring and early summer.

R4: I prefer the Little Mo because of the aesthetics. Pure beauty.

R5: There's more to offer aesthetically than Sheyenne. There is also more recreation. The terrain is much more interesting. More plant and animal types than at the Sheyenne.

R6: It's just awesome out there. A really beautiful place to be. I like to sit out there in the evening, just as the sun goes down. I like to watch the wildlife. They're fun to watch, ya know? I just love watching wild animals. I like to sit for hours and watch the little critters go by. The experience is so . . . relaxing.

R7: I know for me, one of the things I like is isolation. It's Quiet. Very seldom do you come across people. Ya know, it's not like you're at a state park. I have a son-in-law in Colorado, and you go to the park in the mountains or anywhere, you know there's people every place. And that's what's nice about the grasslands, it's nice. And if there is anybody, and you want to get away, you can just drive a half mile down the road and never see anybody. When we go in by the cattle, [people] go in the other way. For some reason, they go all the way around. They don't go in the way we go.

I go out for the cattle. Ah, being able to walk out into the pasture with the cows, ah, interacting with them. It's just the landscape. It's quiet. We go out there and sometimes we don't hike in too far, ya know. But there have been times when I've

been out there without him, and I go to the cows. I could just sit there and watch them for hours. It may sound insane, but I go out there for the photography too. I could go out there without my camera too, but I'm an animal person.

Well, ya know if you tell people you know, they're going to respect it, and the cows. If the general public goes out there and they pitch a tent and start a fire, there's going to be some trouble. Not that I'm not willing to share it with anybody, I mean it's there for anybody who wants it. I mean I'd rather not.

We don't use no maps. We have more fun finding our way around the grasslands just exploring. Only he don't let me drive out here anymore because I almost slid into the river.

We just get in the Jeep and hit the first dirt road. And make sure it's dirt all the way. We'll meander all day.

We wouldn't go there [Little Missouri]. I wouldn't go any more. Not out of spite or anything. I would rather remember it for what it is. But it's not what it was. Ah, because once you put it there, there's sprawl. They [Forest Service] think they can profit off this one, then let's put one down there, and It'll just continue, ya know.

R8: Might as well go check it out, and I really appreciate getting out into nature, and getting away from all the city noise, and into, I don't know, just beautiful nature. And solitude and quietness of it is what really attracts me to it. And just the closeness of the region, it's a major emphasis that brought me here specifically.

At first I wasn't sure what to think of the cattle because I guess the impression of cattle is people. Sort of. But I later learned and realized that actually, if the cattle weren't here it would have been a bison or something like that.

Ah, if I can, I would go to the prebuilt ones [campsites]. Out here there are not a lot of pre-built ones that I am aware of. So then it's finding a spot that's appropriate for a campsite but is not going to be impacted by the campsite itself. It's sort of the rule I guess. The leave-no-trace-behind aspect. In some places, there are sorta established campsites that are like group campsites, I actually have the same feeling as far as having to go to a park and having a campsite where you've got 20 other people sitting around if you're trying to get away from the whole, um, busy environment, as opposed to a site that has been established for only a couple of individuals, or somethin' like that. In that case, only reason I prefer it is because it's already there, I can't really cause any additional changes to what's goin' on there.

R9: I agree with [name omitted]. The Sheyenne is a great place to visit. I really enjoyed the camping, hiking, scenery.

Ah, I prefer it, actually, having the ah, to phrase it, the non-typical like set up – the set up campsite. Um just from the fact that I think the reason I try to get out here is having to kind of get away, and ah in a campsite that is ah like right next to you is another person, ya know at another campsite. Ah, um, I think I can appreciate where I can just go out anywhere and, ya know, be off the trail a little bit, and then I can stop wherever I want to and pick my own campsite, pick my own location, and I like that. I like the solitude of it.

R10: I think the grasslands are important. I guess it would be a good place for a hike.

R11: [Finding the trailhead] Wasn't easy at all. There are no clear signs from the road. Had to ask a couple of hunters out there. They had a map. Once I seen how to get there, it was easy. I could get very upset if I could not easily find one of the trailheads without a detailed map. That's not right.

R12: Important. Extremely important. The scenery is a big part of being there for me. Maintaining the ecosystem very is important. I mean the scenery is just awesome.

R13: I absolutely love visiting the grasslands. It's quiet, peaceful, relaxing. To me, a day spent here is so relaxing. I feel so refreshed and ready to face the work week ahead.

R14: I like the fact that I am out there alone, in the wide open spaces.

R15: Um, it was good. I wasn't expecting too many, expecting so many hills and trees, and I know that it's more in the east than in the west end, ah, ah, but ah, but was really impressed by what is, is was really beautiful, and way more cows than I expected. Ahm, but but what was really an enjoyable experience was the trail is is seems to be well put together in where it goes so there its not difficulty in trying to figure out where exactly where I'm at and don't have to figure out where I'm supposed to go but that's pretty clear. Ahm, and ah, I think that there's ah varying terrain and ah not where it isn't just static and ah ah boring as far as just flat and trails just going straight out. And I know it's different on the other end, but ahm it keeps the interest in the variety a little bit more as well, but I'm pretty pleased with it actually.

R16: Well I know the Forest Service tries to do things to improve it, and the ranchers don't like it say, well like spring turn out. We were in three and half late stage but, it was short, it was cool so they made a decision to wait a couple of weeks and the ranchers were upset about that. The Forest Service is just trying to protect and run a good for future for uses but the ranchers, not all of them, you know, a big percent thought just want, they don't care, they just want put their cows

out 'n use the natural resources, the grass. So then they'll just call their Senator 'n he'll call the Forest Service, 'n the ranchers win. So the ranchers they're the ones are not the ones lookin' out for the land. The Forest Service is tryin'. They're fightin' politicians. I think it's ridiculous.

R17: Well I think they're pretty important, um, just to preserve an area of public land that has this type of environment because, ahm, the grassland environment, there aren't so many of them necessarily. Um, there are actually some I think technically threatened species of plants in the area, and locally some probably only known populations of certain animals, so I think as far as that is concerned, it's it's important, and just to have an area of public land and that can stay public land and in a natural setting I is is important. Especially um . . . open public lands in North Dakota, I mean we just don't necessarily run into quite so many any any more, I mean a lot of 'em are privately owned, so . . . that's my impression.

R18: Ahm I think it's really valuable as far as uhm education and knowing what it was like way back when before there was tons of farm land and that kind of thing around. Ahm. Really, it's hard to imagine this after, ya know this . . . As far as resources an' habitat 'n plants and that kind of stuff ya know, I really don't know. I assume there's stuff out here that that is valuable that isn't in other places an' and it helps build that. Um, I mean it isn't a massive area where there's just a ton of things that can flourish so much out here. Not like uh, uh Yosemite or somethin' like that, ya know like a major national park, but um. But the thing is it's a major benefit to the area um as far as, fer, people who wanna get outdoors and do that kind of thing. Um I think it's very good. It's a huge potential and opportunity as far as fer people to get outside the city life a little bit. But, but also I think it, it, it paints a whole 'nother picture of what North Dakota used to be like than what it is now.

R19: To the Forest Service cultural resources are important. They use consultants, especially from tribal such as the Blue Buttes – very significant.

R20: Very important. This is mostly untouched. Things need to stay that way. And each time I travel there I see something different.

Absolutely gorgeous. Different than anywhere I had been. It's, ah, pristine.

R21: Extremely important. Maintaining the natural habitat is important to the region. Land owners depend on the grasslands. But because some of them could not make it a go with cattle, they plowed much of the land and began farming.

R22: We were on what was an approved trail according to the Forest Service map. We ran into a rancher who was not too happy we were on his property. We saw no signs about private property, but went by what was on the map.

R23: Very important, I guess. The ecosystem is important for the prairie chickens and stuff.

R24: Important. Land management is extremely important to ranching and crop production. Ranching is big at the Little Mo. Ranching was big at the Sheyenne area, but many ranchers have had to plow to raise crops.

R25: I believe that they must be important. Not sure why though. I guess the grasslands are important.

R26: I love the scenery, the beauty, the wildlife. I could just, just sit for hours.

R27: We were on what was an approved trail according to the Forest Service map. We ran into a rancher who was not too happy we were on his property. We saw no signs about private property, but went by what was on the map.

R28: It's like someone going to the top of a mountain alone. It's their mountain. For that time, they own it. I feel the same way on the grasslands. It belongs to me.

Well, ya know if you tell people you know, they're going to respect it, and the cows. If the general public goes out there and they pitch a tent and start a fire, there's going to be some trouble. Not that I'm not willing to share it with anybody, I mean it's there for anybody who wants it. I mean I'd rather not.

R29: The grasslands are important as far as nature preserves go. I understand there are endangered plants and animals out on the grasslands. They need protection.

R30: We went to the Little Missouri Grasslands once. Too many people. Way too many. I'll never go back again. I can spend an entire day at the Sheyenne and see nobody else. I like it that way. The fact there was too much people. I read about the people who hike out there, the people who go through there. I talk to someone who goes out there. He hikes through there, does some camping. I see it on the web. Too many people.

R31: I think the place is important. To maintain a place for the ranchers to use is probably a good thing. To have a place for us to walk, or be in nature is a good thing. Right?

R32: That was my first time at the Little Mo. It was a great experience. The scenery was fantastic. Especially in early morning because things just look so fresh. Undescribable.

R33: [Comments violate confidentiality]

R34: It's nice here. But. We had a hard time finding the entrance. We had to drive to Lisbon to the Forest Service office to buy a map. And the route numbers and road descriptions do not match the map. They need to update their maps.

R35: I think the grasslands are important for grazing and stuff. I mean to the ranchers I guess. But other than that, I don't know.

R36: On a scale of 1 to 10, a 12. Extremely important. Not only because of the aesthetics, but benched management plans are in place. And the history of undisturbed land.

Value of Cultural Resources

R1: I don't know about those kind of things. I guess the wind mills

R2: We were on the Little Mo for a controlled fire burn. One of our vehicles ran over two Indian circles [laughter], but did not disturb them. I think one of them was run over a second time – we did not know they were there.

R3: Define cultural resources. What would they be?

R4: Um. My second experience actually was a little bit different. I did see some horse riders again, I met their camp and then I met up with them, and then I almost thought of it in a past experience of of Teddy Roosevelt ridin' through the grasslands or something like that. So it was actually was sort of almost historical in what I seen, I guess.

R5: I mean I asked my supervisor why some of them places [homesteads] are not marked better. They should have good signs, ya know. He said "Aw, we don't do anything about them. They're not that important to us."

R6: I don't know. I just don't know anything about cultural resources. Interesting question though.

R7: We don't go out looking for artifacts. I couldn't tell you if I would know if I saw an artifact. I think there's an old building, but I don't approach it. I don't look at maps, so I can't state for sure that it's on the grasslands. Ah, but um, but if I ever come across an old house or old building, I never go in. I think if it's on the property, they should stay. I know a lot of people think they should burn them down. They think that is more respectful than letting them deteriorate. But, ah, it might be my kids or my grandchildren that visit – it should be there for them. Let them return to nature on their own. You find an old barn out there or old homestead, don't restore it. Um, leave it, um, restoration for me can only go so far. I think you should leave it alone and let nature take its course.

R8 The view is, just awesome. Gorgeous. I'm sorry for the tragedy that happened at the battle [Big Horn] site, but the view is much more gratifying.

R9: Um. My second experience actually was a little bit different. I did see some horse riders again, I met their camp and then I met up with them, and then I almost thought of it in a past experience of of Teddy Roosevelt ridin' through the grasslands or something like that. So it was actually was sort of almost historical in what I seen, I guess.

R10: The aesthetics are more important than cultural artifacts are.

I attend an annual Custer re-enactment at the Little Big Horn [battle ground]. I sat on a bluff and saw a piece of land that was perfect. I use the re-enactment as an excuse to go back to that spot. I go because of the beauty.

R11: I guess they are not very important. I don't see much about them.

R12: They're not. Not really. I know there is a history of Theodore Roosevelt's ranch, Indian artifacts, and other stuff. But they are not nearly as important as the view. They are just not.

R13: What's a cultural resource?

R14: Ah. I don't know. I mean I'd have to think about that.

R15: [No relative comment].

R16: I don't know. Cemeteries I think would be good thing to keep for people to go and look back at dates and all. But I don't think it matter what the homesteads really, in my opinion.

They have old homesteads out there. Usually find them if you go on the North Country Trail along there and some old cemeteries. I guess hundred to two hundred years old. Depending on each one. I guess the importance depends solely on the person that's interested in it or not. They're not a whole lot to see, really. I don't know. Cemeteries I think would be a good thing to keep for people to go and look back at dates and all. But I don't think it matters what the homesteads really, in my opinion. To me it's, I don't think it's that big a deal, except for the cemeteries as I said. There is nothin' there to see.

Cemeteries are important to the history of the place, I think.

R17: I think it really cool and interesting to see, ahm, um, what was here berfor, an' ya know and the different things that have came across this area er this region. And ah, I think um for the most part it tells stories ya know. It gives that element of

history, and ah I think it gives, ya know, like depth to the area of, of, of it's previous history, and ah, and I think that's valuable in any state, ya know, as long as it isn't a harmful situation, but . . .

R18: Yah, I would agree that the cultural resources, um, of the ones that I know of anyways that's the thing but, I think existing cultural resources I think are important in, in the history and depth they give, I mean, um, you can tell why they would have had a fire tower out where, where the one's located, an' you could tell why they put it at the top of the big hill, an' [laughter] things like that, and, I mean. If I know more about the history of it, I probably would actually be more inclined to say it's important, I mean . . . as it is, somebody my just say "Well, it's a couple piles of, of concrete" or somethin' like that. Ah, so, I think it's mostly where I think it's where, if, if 'it's having a negative impact overall, then it would be a problem, but but I don't know any having that are having that kind of impact, so. I suppose that's possible.

R19: To the Forest Service cultural resources are important. They use consultants, especially from tribes, such as the Blue Buttes. Very significant.

R20: I don't know. I am not sure how to respond to that.

R21: For historical perspectives, I guess they are important. There are not many there that I am aware of.

R22: Ah. Cultural resource. I don't know what that would be. Sorry.

R23: Oh, I dunno. Not that important I guess. It's the natural resources that's important.

R24: Not really significant.

R25: I have not dealt with cultural resources.

R26: I would think maybe an old building? Or how about a barn or something like that? Ah, wasn't Roosevelt in the area once? On a ranch? Something like that would be important. I think.

R27: Can we get back to that? I really. I mean. I don't know if they're important or not important.

R28: [No relative comment].

R29: Well, granted, I didn't see much, of course I saw the windmills, but. I think it really cool and interesting to see, Um, what was here before, an', ya know and the different things that have come across this area, er this region. It gives an element

of history, and ah I think it gives, ya know, like depth of the area, of it's previous history, and I think that's valuable in any state, ya know?

R30: Yeah, I would agree that the cultural resources, um, of the ones that I know of anyways that's the thing but, I think existing cultural resources I think are important in, in the history and depth they give, I mean, um, you can tell why they would have a fire tower out where, where one's located, an' you could tell why they put it on top of a hill, and things like that, and I mean. If I know more about the history of it, I probably would actually be more inclined to say it's important, I mean . . . as it is, somebody may just say "Well, it's a couple piles of concrete" or somethin' like that.

R31: Um, I think it's really valuable as far as, um, education and knowing what it was like way back when before there was a ton of farm land and that kind of thing around. Um, it's hard to imagine this after, ya know this . . . the way it is now.

R32: I guess they would be important to somebody. To me? I don't think so.

R33: [Comments violate confidentiality]

R34: I don't know what a cultural resource would be. I am not sure that they are important to anybody.

R35: Not as important as a natural resource. If a plant goes away, that could affect natural resources. Can't say why they are important . . . they are measures of a physical history.

An analogy would be looking over the Little Big Horn [battle ground]. It's a beautiful landscape. Knowing of the battle and death is nice, but the natural resource views are much more significant. The view is, just awesome . . . gorgeous. I'm sorry for the tragedy at any battle site, but the view is much more gratifying.

R36: Ok, on a scale of 1 to 10, a 10. Can't say why they are important. They are measures of a physical history. An analogy would be looking over the Little Big Horn. It's a beautiful landscape. Knowing of the battle and death is nice, but the natural resource views are much more significant.

Origin of Policy

R1: [Natural resources] The ones who are closest to the land. The ranchers I would think. They would have the biggest influence.

[Cultural resources] Those policies come from the federal government.

R2: [Natural resources] Land users have the biggest influence on policy.

[Cultural resources] The feds on down.

- R3: [Natural resources] Not sure. Depends on what you're talking about.
[Cultural resources]: Don't know.
- R4: [Natural resources] I don't know. Not really. Maybe, ah, ranchers? People who live in the area?
[Cultural resources]: I don't know. My guess would be at the federal level.
- R5: [Natural resources] Well it makes sense that these policies are federal policies on federal lands. But it also makes sense that these policy makers have a lot of input from, uh, hunters, campers, and others who enjoy the scenery. They want it all preserved.
[Cultural resources] From the feds like the natural resources policies.
- R6: [Natural resources] Some ranchers don't care about wise use of the grasslands. They just let their cows out 'n use the natural resources. They take, take, take, and never give back. When things don't go their way, they'll [ranchers] just call their senator 'n he'll call the Forest Service, 'n the ranchers win. So the ranchers, they're the ones, are ones who are not lookin' out for the land. The Forest Service is tryin'. They're fightin' politicians. I think it's ridiculous.
[Cultural resources] I don't know that those resources are relevant. Seems like the Forest Service don't care about that.
- R7: [Natural resources] I don't know.
[Cultural resources] I don't know.
- R8: [Natural resources] Ah, I'm not sure. Maybe just the people who live around here have some influence on policy. So it must start at that level. To meet the needs of the ranchers and such.
[Cultural resources] I have no idea.
- R9: [Natural resources] I think maybe the horseback riders and the campers who go out there.
[Cultural resources] Oh, from the federal government.
- R10: [Natural resources] I wouldn't know.
[Cultural resources] I don't know.

R11: [Natural resources] Like I said before, maintaining the ecosystem is important so policies must be based on maintaining that ecosystem. So those who maintain the grasslands help to set policies.

[Cultural resources] I don't know enough about that to say.

R12: [Natural resources] Those who care about the maintenance and protection of the grasslands have a lot to say about policy regarding the management aspects.

[Cultural resources] Probably special interest groups. I mean I think that is where some of the money would come from. To protect those resources.

R13: [Natural resources] I don't know.

[Cultural resources] Ah, don't know.

R14: [Natural resources] Don't know. State government?

[Cultural resources] Um. Don't know.

R15: [Natural resources] Oh I would think the ranchers would have a major impact on policy.

[Cultural resources] I don't know. From the federal government I think.

R16: [Natural resources] Either from the ranchers, or the Forest Services, or it could come up higher if the ranchers are putting pressure on the politicians. It depends on the situation, I'd have to say.

[Cultural resources] The government. There's that step in the government rules that this stuff has to be marked.

R17: [Natural resources] Well, I'd say there's probably two groups as far as natural resources concerned. Ahm, just, ah I mean local, ah, farmers or whatever, agricultural kind of thing, it gives, I don't know what you'd call farmers, but cattle ranching, probably have some influence because they have some use of this area. Ahm, and then there are going to be the actual groups that deal with, um protection of the natural environments, and things like that. I don't know specifically which ones that would have ah . . . but there are those groups that would be aware of every area that exists like this, an' wanting to preserve them I think. But I guess those would be the two main groups that would be aware of natural resources.

[Cultural resources] I mean I would say a lot of things would have to come from, from ya know historical societies, things like that. Ahm for most the cultural resources.

I think it depends on the cultural resource as well. Um, if it's a Native American resource, then its gunna be more of an interest to be protected by, ah Native American population. Ahm, and ah their basic legislation they put into it. I don't know what that is. But um, um, and then if you're talking about the windmills and that kind of thing, that's gunna be influenced by farmers, ranchers, cattle out there that use it as a vital resource. Um, and then some of the other cultural resources which are left behind, which are the fire tower, that kind of thing, it's, ah, there's not as much interest necessarily in maintaining that.

R18: [Natural resources] I don't know if it's under the same, um, section, but ah, like they used to run like CRP and I think they're still doin' it in some areas, but not as much. And uh, what ever group runs that probably has a similar interest in this. And it's still a function of what they do. Um, beyond that, I really . . . ya know?

[Cultural resources] How involved they are specifically in this area I don't know, so it would have to be on a national level if you're talking about something . . . something that is officially called a natu, ah, cultural resource or is already a cultural resource, or is about culture resource easily identified to go to be protected on a national register, or something like that, I think, makes a big difference as far as who is specifically involved.

R19: [Natural resources] A combination of local land users, university scientists, and Forest Service supervisors. The recommend policy to best manage the land.

[Cultural resources] Oh, the federal government without a doubt. As I said, consultants from tribes have their say.

R20 [Natural resources]: Not sure.

[Cultural resources] I really don't know.

R21: [Natural resources] Land owners have the biggest influence on policy. Problem is, many land owners THINK they know what best practices are. Some users take, take, take, and don't give back. There are some who want to give back to the land and there are others like I said who take and never give back.

The Forest Service is allowing some grazing experimentation. [Names omitted], did three day heavy grazing with good results. One of them put 900 head on 80 acres over a three day period only and saw grass improvement. During drought, production was down everywhere except on experimental land. Researchers would have advised against it.

Problem is, many land owners THINK they know what best practices are. Some users take, take, take, and don't give back. There are some who work with the Forest Service and want to give back to the land, and there are others. Like I said who take and never give back. Don't try to talk with others who take from the land without giving back. They won't talk.

Cows are used as a *tool* while animals like sheep and goats are used to *improve* grasslands.

R22: [Natural resources] Policies out there [Little Missouri National Grasslands] come from those who have an interest in the region. Like the oil companies.

[Cultural resources] I don't know.

R23: [Natural resources] Policy is influenced by those working the land.

[Cultural resources] Top down. Government dictates what to do.

R24: [Natural resources] Supposed to be the government meeting the needs of the people. But the Forest Service is not communicating with the lease. Leasees on the Little Mo are taking cuts on the Forest Service lands. One had a 38 head cut due to reductions in range size by the Forest Service. The Forest Service fenced land off in order to increase prairie dog counts and population. Only the Forest Service just did it without notifying the leasee in advance.

Politically, those in the eastern part of the state are at odds with those in the western part.

[Cultural resources] I am not sure.

We were on the Little Mo for a controlled fire burn. One of our vehicles ran over two Indian circles . . . (laughter) . . . but did not disturb them. I think one of them was run over a second time – we did not know they were there.

R25: [Natural resources] I don't know.

[Cultural resources] I am not sure.

- R26: [Natural resources] People who come to camp or hike have some say. I think maybe ranchers or state tourism. Just my guess.
[Cultural resources] The federal government develops those policies.
- R27: [Natural resources] Mostly local ranchers.
[Cultural resources] I am not sure.
- R28: [Natural resources] The ranchers mostly.
[Cultural resources] The feds probably, but I don't know.
- R29: [Natural resources] The federal government has to have policies on endangered species on the grasslands. I think probably the federal government.
[Cultural resources] The federal government 'cause I don't think there is much interest – I mean by the residents.
- R30: [Natural resources] Well mostly the ranchers. Tourism needs from the locals would be big on policy.
[Cultural resources] Strictly federal government driven.
- R31: [Natural resources] Don't know.
[Cultural resources] I don't know. Something to think about. Maybe.
- R32: [Natural resources] I don't know how to answer that. I am not sure.
[Cultural resources] I don't know.
- R33: [Natural resources] Oh, policies are made through the legislative process. The Department of Interior and Forest Service take information from multitude of sources. We do the best we can based on sound scientific evidence and management planning.
[Cultural resources] Historic preservation policies, the Antiquities Act, and other sources influence government policy on caring for the cultural resources present.
- R34: [Natural resources] I have no idea.
[Cultural resources] Again, no idea.
- R35: [Natural resources] The ranchers and locals. Mostly them.

[Cultural resources] I don't know.

R36: [Natural resources] I think starting with the stakeholders. As I said, the Forest Service is behind in their land management practices, but I think the land users have influence on policy. They influence policy by letting legislators know what they think and know about range management.

The Forest Service does not follow the latest land management practices. They have a model of managing natural resources that looks good on paper, but ranchers and scientists have the latest info. The Forest Service is so far behind on best management practices. Locals are far ahead scientifically, and the Forest Service does not follow their lead.

[Cultural resources] Top-down initiative in place from the feds in Washington D.C. No input from the locals or stakeholders.

Other Relevant Comments

R1: The relationships between the Forest Service, land users, and the public are not so good.

R2: No relevant comment.

R3: No relevant comment.

R4: There needs to be clearly marked signs to the entrance from the roads.

R5: Just the ranchers I think would like to see it [leafy spurge] gone, but government prohibits . . . government agencies from spraying only so, so different, different kinds of chemical. The water table's high so they can only spray certain kinds so that doesn't help.

R6: No relevant comment.

R7: If you can still find a little place that's vast like the Sheyenne, I think that's great. Change is OK, but crowding in that change like the Little Mo, I think, are going to be problems. Keep the visitor centers and tourists at the Little Mo. Leave it [Sheyenne National Grasslands] the way it is.

R8: I would like to do some hiking. Expected to see more tall grass though.

R9: Depends if you want hiking or horseback. If hiking I hope you don't mind walking through the grass because the trails are not mowed, which the government is supposed to do. Typical government not doing their job."

R10: Ranching is big at the Little Mo. Ranching was big at the Sheyenne area, but many ranchers have had to plow to raise crops. Politically, those in the eastern part of the state are at odds with those in the western part. And some non-leasees are jealous of leasees because of the perception that leasees get a better deal.

R11: No relevant comment.

R12: No relevant comment.

R13: No relevant comment.

R14: The Forest Service deals with two plans. One is range land management, and the other is about oil, gas, and mineral extraction.

R15: No relevant comment.

R16: No relevant comment.

R17: [Eradication of leafy spurge] The beetle probably work best, and spray somewhat. But sheep will never work. Sheep don't eat leafy spurge. It's not in their diet.

R18: No relevant comment.

R19: No relevant comment.

R20: Watch the Forest Service to ensure they stick to the rules of protection. The Forest Service is under pressure for extractive purposes. [Such as] Open mining, roadless areas, oil.

R21: Don't try to talk with others who take from the land without giving back. They won't talk.

R22: No relevant comment.

R23: No relevant comment.

R24: Communication from the Forest Service to land owners occurs less often than before.

Leases on the Little Mo are taking cuts on the Forest Service lands. One had a 38 acre head cut due to reductions in range size by the Forest Service. The Forest Service fenced land off in order to increase prairie dog counts and population. Only the Forest just did it without notifying the leasee in advance.

If you plan to talk with those who are leasees, talk with those who actually lease the land. Cattle associations would be a good source to talk with. Chairs are most likely to talk.

When you talk to Forest Service employees, talk to the lower ranking employees.

Leafy spurge on the Sheyenne is being spread by horses and campers or hikers. As a weed, getting a handle on leafy spurge is a problem.

R25: No relevant comment.

R26: No relevant comment.

R27: No relevant comment.

R28: No relevant comment.

R29: No relevant comment.

R30: No relevant comment.

R31: No relevant comment.

R32: No relevant comment.

R33: No relevant comment.

R34: No relevant comment.

R35: I was surprised at what it was not. I expected more tall grass than grazing. I was also glad to see the resource protection in place . . . fenced off areas of orchards by McCloud.

36: The Sheyenne grassland is in bad shape. Leafy spurge is a big problem that the Forest Service had a hard time controlling. Compare the Sheyenne to the Brown Ranch which is in great shape. They know how to manage their land.