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PROTECTING THE CROWN OF THE CONTINENT ECOSYSTEM:
A HISTORY OF CONSERVATION IN THE BLACKFOOT AND SWAN VALLEYS,
MONTANA

By

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THESIS

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ABSTRACT

Conservation strategies are essential tools for protecting landscapes and ecosystems. The Blackfoot and Swan Valleys in Montana, which are analyzed in this study, are considered to be prime examples of conservation efforts. Key conservation agencies in the study area include the Blackfoot Challenge and Swan Valley Connections. This study analyzes the history of conservation in the Blackfoot and Swan Valleys, current conservation practices, and contributors to successful conservation. The study uses the theoretical background of game theory and contributes to conservation theory and aims to contribute to the field of mountain geography. The methodological approach of the study is qualitative in nature. Research was conducted in the form of fourteen semi-structured interviews with key players in the local conservation movement. Major themes discussed in the interviews included the development of the conservation movement, the current conservation practices, as well as the importance of collaboration and perceptions by the locals. The study produced a written history of conservation in the Blackfoot and Swan Valleys and discusses current practices in conservation and contributors to successful conservation. Through the application of game theory, the study views those who are involved in conservation work as a 'players' in a 'game of conservation' and found that the game in which conservation is being practiced changed from relatively independently operating players to a network of strongly collaborating players.

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CHAPTER 1: INTRODUCTION

Conservation strategies are essential tools for protecting landscapes and ecosystems during times of global warming and environmental degradation. In this thesis, I conducted an analysis of the history of conservation in the Blackfoot and Swan Valleys in Montana. The research about the conservation history was carried out due to a research grant provided by the Cinnabar Foundation for writing a comprehensive history of the conservation in the Blackfoot and Swan Valleys. Both valleys are located in Western Montana in the Crown of the Continent Ecosystem and are often considered to be prime examples for conservation: Weber (2012:35) refers to the Blackfoot Challenge as “highly successful” and describes it to have received several awards including the Innovations in American Government Award (2006). The US Forest Service refers to the work of the Forest Legacy Program in the Swan Valley as “an important conservation success” and points out that numerous other organizations are involved in conservation work in the valley (Forest Legacy Program – Success Stories – “Swan Valley Montana”, 2013). According to Weber (2012:35) reasons for the success of the Blackfoot Challenge are a number of variables including the “character of the organization, continuity of leadership, a multi-faceted managerial strategy, and the application of a systematic fiscal strategy”. Cestero and Belsky (in Kusel and Adler, 2003) discuss the founding of the Swan Citizens’ Ad Hoc Committee and state that a dialogue developed from ongoing community meetings.

Analyzing these successful conservation approaches will contribute to the general understanding of conservation and can be of help for establishing successful conservation in other regions. Several conservation agencies play key roles in the area: the Blackfoot Challenge, and

Swan Valley Connections, which developed from the merging of Northwest Connections and the Swan Ecosystem Center in January 2016, are the most prominent examples

Conservation in the study area follows the goal of maintaining the working landscape for future generations. Conservation efforts in the study area include working towards a sustainable use of the forests and ranchlands, a return to a natural fire regime, and reducing invasive weeds and conflicts with wildlife. Conservation in the study area also means a sustainable use in recreation and thus combining economic viability with the protection of the land.

This study analyzes the use, protection and perception of one place in detail. It thus helps to include the general concept of place and space in the thesis. Tuan (1975) differentiates between space and place. He describes space to be abstract and empty while place is created by humans and is being lived in. Tuan refers to space as “possibility and beckoning future” (1975:165) and to place as “the past and the present” (1975:165), meaning that there are no human connections attached to the open space yet, and therefore there are different possibilities for the future, while place is either currently used or inhabited by humans or was so in the past. Tuan further states that earth consists no longer primarily of space, but of place and says that in geography there have been two approaches on the study of place: One approach was place as a location; the other approach was place as a unique artifact. Tuan talks about place as a “center of meaning constructed by experience” (1975:152) and contrasts knowledge of places between an abstract or theoretical and an intuitive knowledge and says that places are rarely just one of the two extremes. Places are said to being constructed. Tuan (1979) comments that space and place are central to the geographical discipline and that places are more than a location and have history

and meaning. It is a “special ensemble” (Lukermann, 1964:70, in Tuan in Gale and Olsson 1979:387) that is dependent on the people’s perspectives who give meaning to it.

Gieryn (2000) discusses the role of place in sociology. He describes place to have three features, the geographic location, the material form, and an investment with meaning and value. Gieryn (2000:465) notes that “Without naming [...], identification, or representation by ordinary people, a place is not a place.” On the other hand, the author refers to space as “abstract geometries” (2000:465) and says that place will become space “when the unique gathering of things, meanings, and values are sucked out” (2000:465). Gieryn points out that “culturally reproduced images of places are thus arbitrary but real in their consequences – for what people do to the land, as they make (or destroy) places” (2000:473). Gieryn (2000) further states that attachment to place comes from biographical experiences and that the longer people have lived in a place, the stronger their attachment to it seems to be.

Seamon and Sowers state that place has the ability to order intentions, experiences, and actions by humans in a spatial component. The authors state that Relph views space and place to be “dialectically structured in human environmental experience, since our understanding of space is related to the place we inhabit, which in turn derive meaning from their spatial context” (Seamon and Sowers in Hubbard et al., 2008:44). The authors state that Relph intensely discussed the identity people have of and with place and described places to be “significant centres of our immediate experiences of the world” (Relph, 1976:141, in Seamon and Sowers in Hubbard et al., 2008:45).

The study contributes to the fields of Mountain Geography and Conservation Theory. It analyzes conservation history, current conservation strategies and contributors to successful

conservation. The thesis analyses the interaction between multiple decision makers in the study area through the concept of Game Theory. It aims to connect the theoretical background of game theory to conservation history and practices in the study area. The practicing of conservation is to be considered the 'game' in this research. The 'players' are anyone who has influence on the way conservation is practiced. This includes decision-makers like politicians or representatives of the government, conservation agencies and people affiliated with those agencies, and private individuals involved in conservation. However, companies or individuals who are opposed to conservation approaches or to some conservation approaches or feel indifferent about them are also seen as players as long as their actions and strategies influence the game of successful conservation practices. The strategy set refers in this context to the ways in which people can influence successful conservation. The strategy set depends on the individual player and is determined by laws, assigned responsibilities and authorizations, and personal or organizational influence.

The goal is to conceptualize the development of conservation, the conservation practices, and the factors for successful conservation. Using game theory to analyze the historical development of the conservation work in the study area means analyzing how the game of conservation developed and changed over time, when different players joined the game of conservation, and if the rules in the game of conservation changed over time. The current practices in conservation are analyzed through the rules and players in the game of conservation. During the analysis of the interviews, collaboration and perception stood out as important themes by which conservation work and contributors to successful conservation work could be analyzed. The analysis of the perceptions of the players in the game of conservation looked at the individual players in more depth and takes personal opinions and motivations for participating in the game

of conservation into consideration. The analysis of collaboration discusses the interactions between the individual players.

A review of the literature revealed that collaborative conservation efforts tend to be more successful and that place attachment plays a large role in deciding for conservation easements (Byrd, 2009; Farmer et al., 2011). The literature suggests an interaction between several different conservation agencies and individuals from the study area to be a major component of the conservation work and that collaborative conservation approaches tend to be more successful. As this indicates a strong importance of the interaction between the different involved players, game theory was seen as a useful tool to interpret these interactions. Studies about conservation in the Blackfoot and Swan Valleys include Weber's (2012) study about the potential of collaborative governance arrangements in the Blackfoot Valley, Byrd's (2009) study of the role of the public land manager in collaboration conservation planning, which included the Blackfoot Challenge as a case study, Seibert's (2007) study of community forest education in the Swan Valley and Cestero's (1997) study of environmental collaboration in the Swan Valley. Overall, few sources could be found about the conservation history of the wider region, and in particular of the Swan Valley; no comparative study was found at all.

The study at hand differs from previously developed studies in the sense that it studies the overall history of conservation in the two valleys, includes a range of different conservation methods, and reasons for the successful development. Most existing studies focus primarily either on one specific method of conservation or on one specific organization, while this study looks at conservation in the study area in general. This research aims to fill this gap in the literature of a comprehensive history of conservation of the study area. Further, conversations with people from

the study region have identified large interest in the production of a written local conservation history.

In addition to the Cinnabar Foundation, which provided the funding for this research, the study is mainly directed to geographers and planners working on land conservation, as well as conservation agencies and interested local people. It is assumed that detailed knowledge about reasons for success in the study area can contribute to starting and improving conservation in other regions.

The research questions this thesis aims to answer are (1) how and why the conservation movement started in the Blackfoot and Swan Valleys and how it developed, (2) how conservation is being practiced now, and (3) what major contributors to the success were. It was hypothesized here that successful conservation has to be well adapted to the landscape and ecology of the region and depends strongly on involvement of local communities. Therefore it was assumed that differences in the way conservation is being practiced in the Blackfoot and Swan Valleys could be identified. Based on research in the literature about conservation in the study area, it was further hypothesized that the Blackfoot Challenge, the Swan Ecosystem Center, and Northwest Connections have played major roles in conservation in the area. The methodological approach is qualitative in nature and focuses on semi-structured interviews. Fourteen interviews were conducted with local people and employees of the conservation agencies, about the history of conservation, current conservation practices, and perceptions of major contributors to its success. Additional information was gained from the general literature as well as online materials from the conservation agencies. Interview results were analyzed by the following categories: development

of the conservation movement, current conservation approaches, collaboration as a major contributor to successful conservation, and perceptions by the interviewees.

(1) The outcome of the study is presented as a written history of conservation in the Blackfoot and Swan Valleys. The study has shown that the conservation history of the area is significantly coined by successful collaboration between key conservation organizations like Blackfoot Challenge and Swan Valley Connections. Engaged key stakeholders, local residents, and strong communities in which members participate in activities and developments are further reasons for the successful development of conservation. The history of conservation has shown a development from very little collaboration among the players to a strong collaborative network and current conservation practices depend largely on collaboration. Collaboration was further identified repeatedly as a main contributor to conservation success.

(2) The study describes current conservation practices, such as working towards a sustainable use of the forests and ranchlands, a returning to a natural fire regime, and reducing invasive weeds. Conservation easements are important measures to prevent development and subdivision of the land. Conservation efforts further aim to educate about conservation and sustainable land use, to promote environmentally friendly recreational opportunities, and to improve interactions between humans and wildlife.

(3) The study identified key factors that locals see as significant contributions to successful conservation work; these are the involvement of local communities and the engagement of key individuals as well as the collaboration between locals and stakeholders. Perceptions by locals of the study area as worth protecting further play an important role. Overall,

the interaction between the individuals involved in conservation stood out as main aspect of conservation in the Blackfoot and Swan Valleys.

The study is organized into several chapters as follows:

Chapter 1 is an introduction that gives an overview of the thesis and formulates research questions, hypothesis, and theoretical context. Chapter 2 provides an overview of the study area, which is located in the Rocky Mountains in Western Montana. Chapter 3 provides a summary of game theory and mountain geography as a theoretical framework as well as a review of the literature with a focus on conservation in general and more specifically on conservation history. Chapter 4 discusses the applied methodology, which was a qualitative research using semi-structured interviewees. Chapter 5 discusses the conservation history in the study area. Chapter 6 analyzes currently applied conservation strategies in the study area. Chapter 7 analyzes the perception of conservation of the interviewees. Chapter 8 discusses collaboration as a contributor to successful conservation work. Chapter 9 is a discussion of interview results and relates the conclusions from the interviews to the theoretical framework of game theory. Chapter 10 presents the main conclusions from this study.

CHAPTER 2: STUDY AREA

The study area for this research consists of two Montanan valleys: the Blackfoot Valley and the Swan Valley. Both valleys are located in the Rocky Mountains in Northwestern Montana.

Map #1 serves as a locator map of the study area.

Map #2 provides a more detailed overview.

The valleys are part of the Crown of the Continent Ecosystem (CoC), which is according to Pedyowski (2003:809) an “international transboundary area of the Rocky Mountains that surrounds Glacier National Park (USA) and Waterton National Park (Canada)”. Pedyowski (2003:809-810) further defines the CoC as an ecologically cohesive, predominantly rural area that can be described as a “greater ecosystem”. In Montana, most of the public land in the CoC belongs to national parks, particularly Glacier National Park, or designated wilderness areas. The Bob Marshall Wilderness, the Great Bear Wilderness, and the Scapegoat Wilderness are wilderness areas in the CoC, all managed by the USFS (Graetz and Graetz, 2004).

Blackfoot Valley

The Blackfoot Valley study area is the watershed of the Blackfoot River, which is the area between Rogers Pass on the Continental Divide to the Northeast and the confluence with the Clark Fork River to the Southwest. The study area follows the Blackfoot River and Highway 200 in an East to West direction. The Blackfoot Valley is a part of Missoula County, Powell County, and Lewis and Clark County.

Main settlements of the Blackfoot Valley are Ovando with a population of about 80 (in the Ovando CDP) and Lincoln with a population of about 862 (in the Lincoln CDP) (United

States Census Bureau – American Fact Finder – Selected Social Characteristics in the United States, 2014). The population in the Blackfoot Valley is predominantly white. In Lincoln (CDP) 95.5 percent of the population are white; in Ovando (CDP) 98.8 percent of the population are white. The median age of the population is 50.9 in Lincoln and 53 in Ovando (United States Census Bureau - American Fact Finder – Profile of General Population and Housing Characteristics, 2010).

Rothrock et al. (1998:565) refer to the Blackfoot Valley to be “well known for its scenic beauty and recreational benefits as depicted in a book by Norman Maclean (1976)”. Fitzpatrick (2003) conducted a study in the Upper Blackfoot Valley and describes the area’s human population to be “small and scattered” (2003:7).

Alt and Hyndman (2003) state that between Bonner and Ovando, the Blackfoot Valley crosses the Garnet Range at an angle and crosses tightly folded rocks, which belong to the north edge of the Sapphire tectonic block, which moved into Montana from the Idaho batholith approximately 70 to 75 million years ago. Granite intrusions in the Garnet Range have been found along major fault lines. The mountains along the Highway 200 consist mainly of Precambrian sedimentary rocks. The Potomac Valley and the broader valley surrounding Clearwater Junction are structural basins that are deeply filled with sediments. From Lincoln to Rogers Pass, the highway follows a narrow valley, consisting of Precambrian sedimentary rock, of the overthrust belt. Alt and Hyndman further point out that molten granite magma has intruded the overthrust rocks and caused the existence of metallic minerals in the region. A series of glacial moraines and outwash plains can be found in the Blackfoot Valley along Highway 200.

Ovando is located on a smooth outwash plain in between two expanses of hummocky morainal topography (Alt and Hyndman, 2003).

Snowmelt and groundwater feed the Blackfoot River at its origin near Rogers Pass on the Continental Divide. The river is joined by additional forks: the Landers Fork that joins the river just upstream from Lincoln, the North Fork that comes from the Bob Marshall and the Scapegoat Wilderness areas, the South Fork that joins at Kleinschmidt Flat, and the Monture Creek. From its origin to the confluence with the Clark Fork River near Bonner, the Blackfoot River has a total length of 130 miles (Manning, 1998). The Blackfoot River is important trout habitat (Rothrock et al., 1998).

The Blackfoot watershed contains a total of 2,320 square miles of biologically rich and diverse lands and the river system provides important habitat for numerous fish species and riparian habitat for wildlife (Pierce et al., 2005). Maron et al. (2010:3720-3721) note that “the Blackfoot Valley supports one of the few remaining native grassland ecosystems in North America containing all the mammalian and avian predators that have historically occurred there”. The valley is grizzly bear habitat (Manning, 1998). Other wildlife species in the area include elk, white-tailed deer, mule deer, and moose (Maron et al., 2010). The Blackfoot Valley contains significant amounts of grazing land, and ranching is a major source of income. Wetland features such as potholes, glacial lakes, and ponds cause high biodiversity in the region (Huth, 2007:43). The shrub-steppe is the main native plant community (Fitzpatrick, 2003). Fitzpatrick (2003:7) comments that in the Upper Blackfoot Valley “Most of the valley floor is privately owned and used for agriculture with large areas modified by grazing or converted to exotic grass pastures and haylands.”

Swan Valley

The Swan Valley lies between the Mission Mountain Range to the West and the Swan Range to the East, and between the Clearwater Junction to the South and Bigfork to the North. It is located between the Bob Marshall Wilderness and the Mission Mountain Wilderness (Seibert, 2007). The study area follows the Clearwater River up to Clearwater Lake and then follows the Swan River and ends at Bigfork located at the Swan River's estuary at Flathead Lake. The Swan Valley stretches in a North to South direction. The Swan Valley is mainly a part of Missoula County, and its northern end extends into Lake County.

Cestero (1997:37) describes the Swan Valley as “a small corridor of development through rugged and relatively pristine country” and further refers to the valley as “relatively undeveloped” (1997:40). The Swan Valley is only thinly inhabited (Seibert, 2007). Major settlements are Seeley Lake with a population of about 1,174 and Condon with a population of about 431 (United States Census Bureau – American Fact Finder – Selected Social Characteristics in the United States, 2014).

Similarly to the Blackfoot Valley, the Swan Valley has a predominantly white population: 96 percent of the population of Seeley Lake (CDP) is white. In Condon (CDP) 96.5 percent of the population is white, The median age in Seeley Lake is 49.6 years and in Condon (CDP) 56.9 years (United States Census Bureau - American Fact Finder – Profile of General Population and Housing Characteristics, 2010). Cestero (1997) found that the retired people make up the largest demographic group in the Swan Valley and also the fastest growing group.

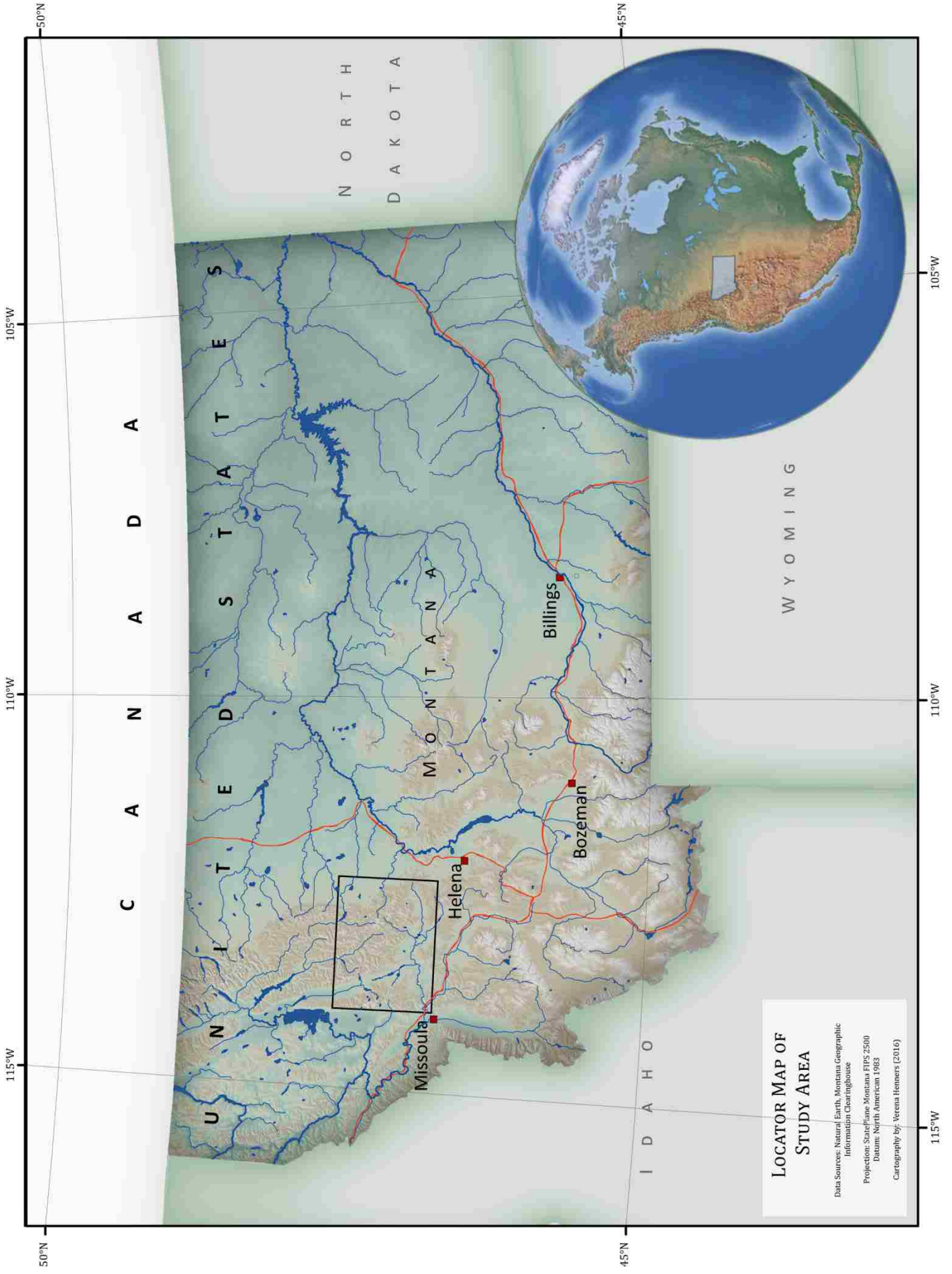
Both the Swan and the Mission ranges have been marked by heavy ice-age glaciation and contain alpine landscapes. During the maximum of the last ice ages, glaciers crept into the Swan

Valley, depositing moraines that formed the hills that can be found south of Clearwater Junction. Between the Clearwater Junction and Salmon Lake, an outwash plain can be found below a younger moraine (Alt and Hyndman, 2003). Salmon Lake is located to the North of the Pinedale moraine that served as a natural earth fill dam. North of Salmon Lake, a chain of lakes can be found that are flood depressions in glacial deposits. When the climate was warming at the end of the last ice age and the glaciers were receding, the ice melted where it stood. The melting ice carried sediments and deposited outwash. The lakes in the study area are located in the low areas of the outwash. After the ice masses that had filled the valley had melted, glaciers from the Mission and Swan ranges continued to come down the valleys. Moraines deposited by these glaciers now enclose Holland and Lindbergh Lakes (Alt and Hyndman, 2003).

The Swan Valley is relatively wide compared to other valleys in the Rocky Mountains. It is forested and contains complex wetland systems. McCune and Antos (1981:1197) refer to the Swan Valley as “predominantly forested” landscape with the largest number of trees occurring at low elevations on modal upland sites. Cestero and Belsky (2003:151) similarly describe the valley to have “diverse, thick coniferous forests”. Among the trees that can be found in the Swan Valley are Douglas fir, Englemann spruce, and lodgepole pine.

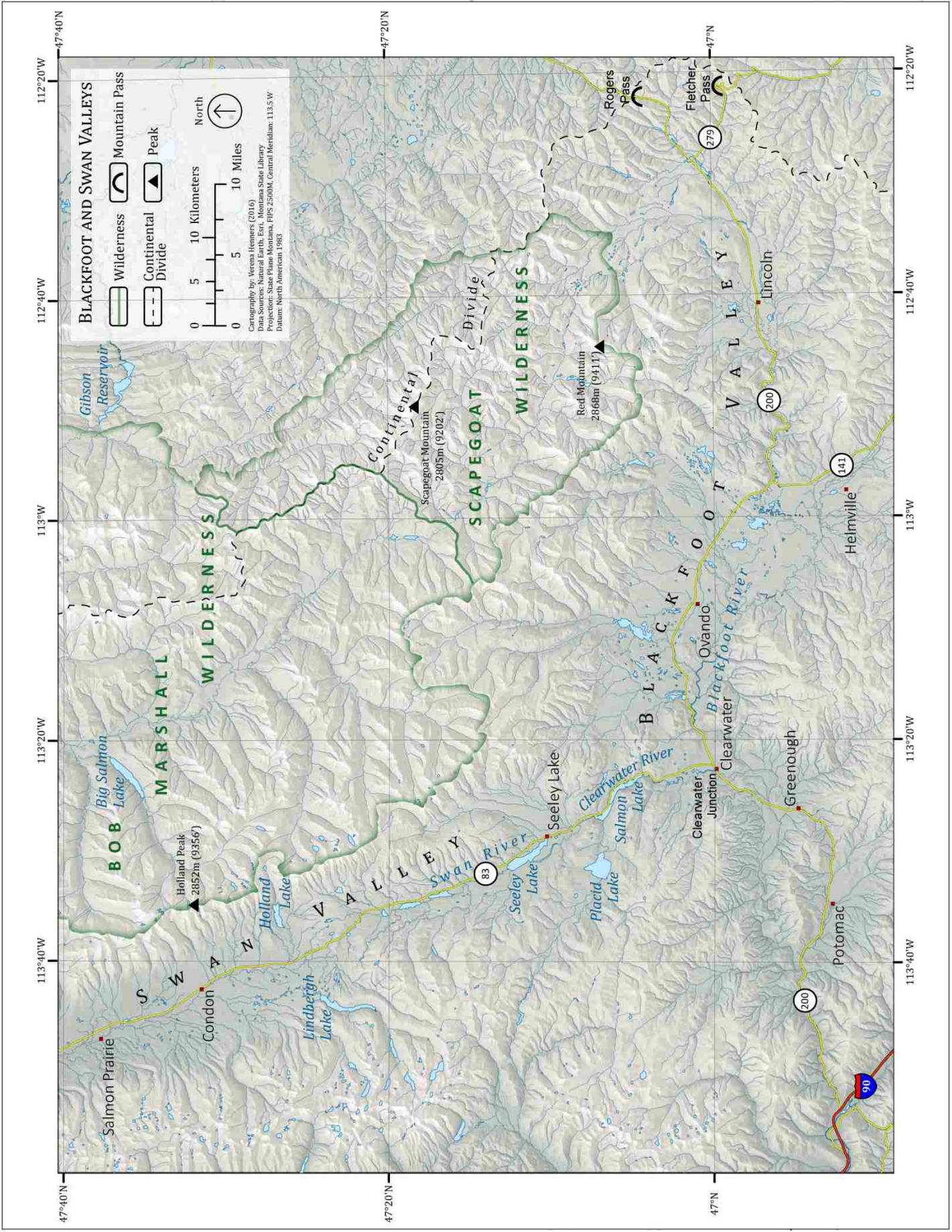
The Swan Valley is one of the ecologically most diverse areas within the CoC and plays a critical role in connectivity between the Bob Marshall Wilderness and the Mission Mountain Wilderness, especially for far-ranging animals such as grizzly bears and lynx (“Swan Valley”, 2015). Cold-water fish including native bull trout can be found in the river system (Cestero and Belsky, 2003). Harvesting timber plays a major economic role for the area. Cestero (1997:43) refers to the community as “forest-dependent” and says that most of the valley’s permanent

residents earn their living through different forms of using the forested lands in the valley. The author further states that there are no large employers in the Swan Valley and that many residents are self-employed and many have numerous seasonal or part-time employments. Cestero describes the livelihoods of the Swan Valley's residents with the following words: "What is essential from this portrait of Swan residents' livelihood is that residents depend on both the extraction and protection of the valley's natural resources" (Cestero, 1997:45).



LOCATOR MAP OF STUDY AREA

Data Sources: Natural Earth, Montana Geographic Information Clearinghouse
 Projection: Spherical Montana EPSG:2500
 Datum: North American 1983
 Cartography by: Verena Henners (2016)



BLACKFOOT AND SWAN VALLEYS

- Wilderness
- Mountain Pass
- Continental Divide
- Peak

0 5 10 Kilometers
0 5 10 Miles

North

Cartography by Verano/Hanover (2016)
Data Sources: National Earth, East, Montana State Library
Projection: State Plane Montana, FIPS 2500M, Central Meridian: 113.5 W
Datum: North American 1983

CHAPTER 3: LITERATURE

The following section of the study summarizes findings in the literature on topics and studies relevant for the research conducted here. This section discusses literature about conservation and conservation theory, perceptions of conservation and landscape, and collaboration in conservation. Further, game theory, the theoretical background in which this study is based, and behavioral models are discussed in this section of the thesis.

Conservation

Definition

Conservation can generally be defined as means of sustainable land use, although definitions vary.

Castillon (1999) refers to the aims of conservation as conserving natural resources for future generations by using them wisely. Leopold (in Castillon, 1999:18) defines conservation to be a “state of harmony between humans and land.” According to Clutter and Renwick (2004: 9), conservation means the “wise utilization of a resource so that use is tempered by protection to enhance the resource’s continued availability”. Conservation stands in contrast to exploitation, which means the complete use of a resource and preservation, which refers to the “nonuse of a resource by which it is fully protected and left unimpaired for future generations” (2004:9).

Community emphasized conservation is according to Berkes (2004: 622) based on the idea that “if conservation and development could be simultaneously achieved, the interests of both could be served”; the large majority of rural conservation projects define themselves as “community-based”; results of community-based conservation are to be “mixed at best” and the

performance of many community-based conservation projects has according to the author been below expectations. Berkes says that not much evidence can be found that community-based conservation has seen benefits from research analyzing social-ecological systems. However, Berkes also states that communities do not operate as isolated agents and that the larger systems have influences on conservation in the communities.

This indicates a need for further research to find contributing factors for successful conservation work. Since organizations like the Blackfoot Challenge are generally considered to be highly successful in their conservation work and also define themselves to be community-based, they serve as a well-suited case to conduct this research. The research will illustrate which other factors contributed to successful conservation work in the Swan and Blackfoot Valleys.

Based on the definitions of conservation in the literature, in this research conservation is to be seen as the wise use of the land and its natural resources that sustain land and resources for the benefit of future generations.

Conservation Theory

Fazey and McQuie (2005:147) define conservation theory as the theory of summarizing what we know about how the biophysical and biological world works, how the natural world works if human influence is present, or as a derivative from “non-biological disciplines, such as economics or business management, which is directly applied to achieve conservation outcomes.” Their study revealed that conservation theory is often applied implicitly and without awareness of which theory is being applied.

Colyvan et al. (2011: 1246-1247) point out that decisions in conservation often have to face a number of conflicting interests. One can model these conflicting interests as “decisions of a single agent attempting to maximize satisfaction of different objectives representing those interests: preserving indigenous land-use, protecting biodiversity, ensuring recreational access to natural areas, minimizing economic cost, etc.” (2011:1246). The focus on consensus is reasonable and “facilitates using well-studied multi-criteria decision analysis methods to evaluate conservation problems” (2011:1247). For applying consensus to natural resource management problems, consensus is typically only required about the final outcome and not about intermediate decisions. However, the occurring conflicts of interest are described to be often unresolvable. How conflicts are managed without relying on authority or consensus is crucial to making effective decisions for conservation work. Colyvan et al. (2011:1247) further conclude that game theory can serve as an appropriate framework for approaching conservation: decision making based on game theory is “a form of adaptive management where conservation advocates adapt their strategy based on expected responses from business interests, community delegates, governments, and other stakeholders.” In the approach, different types of conservation and natural resource management decisions correspond to different scenarios of game theory. Some of the game theory scenarios have non-cooperative optimal solutions while other scenarios require cooperation in order to achieve optimal solutions.

Burnett (2013:2) discusses three different approaches to conservation: ‘biologist-centric’, ‘partner-centric’, and ‘community-based’. While the biologist-centric approach bases conservation actions on biophysical science and sees the biologist and the resource of concern central for the decision making process, partner-centric conservation focuses more on social processes. Community-based conservation on the other hand focusses on “partners working in the

right places on the right projects” and the partners follow the so-called 80/20 rule, where they focus on the 80 percent of issues on which they agree, and once sufficient trust and credibility has been built-up among them, work on the remaining 20 percent on which they initially disagree.

Historical Background

Conservation History in the United States

In the 1700s and 1800s, land appeared to be “an endless source of resources” in the United States (Chiras and Reganold, 2005:6). Under the so-called frontier ethic during the colonization of North America, wilderness was seen as something to be conquered and extinguished (Jordan, 1995).

The need for conservation started becoming visible for a small number of people in the early 1800s. This included George Washington and Thomas Jefferson, who employed effective methods to control soil erosion on their land (Chiras and Reganold, 2005). Henry David Thoreau (1817-1862), who discussed his ideas on conservation in his essay ‘Life Without Principle’, was another opponent of the frontier ethic. George Perkins March (1801-1882) discussed in his book ‘Man and Nature’ that humans destroy an the harmonic natural order. According to Jordan (1995), Marsh’s writings had a large influence on the conservation movement.

John Muir (1839-1914) brought public attention to environmental destruction caused by development in California and founded the Sierra Club (Jordan, 1995), which today is one of the most politically active conservation groups in the U.S. (Chiras and Regenold, 2005). Thoreau, Marsh, and Muir faced little institutional support and were “basically solitary voices” (Jordan, 1995:15).

In 1872, Yellowstone National Park, the world's first national park, was created, followed by Yosemite and Sequoia in 1890. In 1891, Congress created 28 forest reserves (Chiras and Regenold, 2005). The movement at the end of the 19th century pointed out that the continent was not an endless frontier with unlimited resources. The movement was mainly focused on the practical means of how to use nature without destroying it and developed into a social and political phenomenon known under the name 'conservation movement'.

President Theodor Roosevelt (1858-1919) established a policy for conservation of natural resources in the U.S. with a particular focus on forest management. The main principle of the conservation movement was as described by Roosevelt (in Jordan, 1995:15) "using them [the resources], but using them without destroying them". The movement can be condensed to the words "wise use" (Jordan, 1995:15). This principle was applied to all natural resources. Gifford Pinchot (1865-1946), the first chief of the forest service, played a major role in implementing the preservation of forests for both future and present generations into forest management (Jordan, 1995). Conflicts arose between supporters of the wise use movement and frontiersmen. Eventually, the wise use movement failed due to disagreements over the definition of a wise use of the land and the idea was completely corrupted by the 1990s (Jordan, 1995).

President Theodor Roosevelt held the 'White House Conference on Natural Resources' in 1908, to which he invited governors, congressional leaders, scientists, anglers, hunters, and resource experts from several countries. He concerned about the exhaustion of timber in several states and the increasing notion of resources being mismanaged. Subsequently, a National Conservation Commission consisting of 50 members was formed. The commission wrote the first Natural Resources Inventory in the U.S. (Chiras and Regenold, 2005).

Franklin D. Roosevelt established the National Resources Board in 1934, which completed the second Natural Resources Inventory. In the inventory, resource problems across the country were identified and methods for solving them proposed. Roosevelt further initiated several programs, including the Prairie States Forestry Project (1934), the Civilian Conservation Corps (1933), the Soil Conservation Service (1935), the Tennessee Valley Authority (1933), and the North American Wildlife and Resources Conference (1936) (Chiras and Regenold, 2005).

The Forest Service had stopped the practice of regulating logging and grazing in National Forests but instead supported loggers and ranchers. Aldo Leopold, a forester and game manager disagreed with the policies practiced by the Forest Service and wrote an essay in 1949 titled 'The Land Ethic', in which he discussed three phases in the development of human ethics: relations between individuals, between the individual and society, and between the individual and land, animals and plants that grow on the land. This was by many considered the first attempt to develop an ethical theory for the relationship between humans and nature in modern Western literature (Jordan, 1995).

After World War II, private conservation organizations increasingly followed Leopold's approach to conservation. This was mainly due to an increased pressure on federal lands, the government's increasing support of timber harvesting, and an increasing abuse of grazing privileges on federal lands by ranchers (Jordan, 1995).

Chiras and Regenold (2005) see the 1960s as the time during which the conservation and environmental movement made significant progress. During this period, negative environmental impacts became obvious due to continued increase in productivity (Jordan, 1995). Numerous influential texts were published during this time: Rachel Carson's book 'Silent Spring', published

in 1962, helped draw public attention to environmental issues and conservation problems and can according to Jordan (1995: 20) be regarded a “conservation milestone”.

In 1969, ‘Earth Day’ was introduced in order to educate and motivate college students to “halt the accelerating pollution and destruction of the environment” (Chiras and Regenold, 2005:7). The 1970s have been given the title “decade of the environment” due to numerous important environmental acts being passed during this time, including the Environmental Protection Act, which according to the authors has become a major agent in environmental protection with power over various issues (Chiras and Regenold, 2005:8). Further major acts include the Clean Air Act (1970, 1977, 1990), the Resources Recovery Act (1970), the Endangered Species Act (1973), the Clean Water Act (1977), and the Endangered American Wilderness Act (1978).

The 1980s and 1990s represented setbacks for the environmental movement in the U.S., since many politicians and business leaders showed skepticism towards environmental protection; however, eventually it was also a time of major environmental progress (Chiras and Regenold, 2005). During this time it showed that although large amounts of money were spent on environmental protection, the gains were offset by economic growth or growth of the population. Some solutions were not efficient and just shifted the problems.

In his book ‘Building a Sustainable Future’ (1981) Lester Brown was the first person to draw attention to the unsustainable use of human societies of resources, something that several experts began to notice in the 1980s and 1990s (Chiras and Regenold, 2005).

In 1983, the World Commission on Environment and Development was initiated by the United Nations. The commission’s goal was to find more environmentally friendly ways of

development. In 1992, the United Nations ‘Conference on Environment and Development’, commonly known as ‘Earth Summit’, was held with officials from nearly 180 countries attending. A number of agreements on issues including climate change, biodiversity, and deforestation were made and more than 4,000 action items for achieving a sustainable development were specified (Chiras and Regenold, 2005).

Recently, the understanding that environmental problems cannot be regarded in an isolated way but should be approached as interrelated social and economic problems has spread increasingly. Increasing numbers of scientists regard the conservation of resources and biodiversity as a “political, social, economic, and cultural dilemma as well as a technical problem”, and long-term solutions should be sought through political means (Jordan, 1995:23). Effective conservation and management of natural resources is becoming increasingly urgent due to a rapid growing of the global population and the human economy and the accompanying degradation of the natural environment and production of waste (Chiras and Regenold, 2005).

In summary, Chiras and Regenold (2005) see the most significant advances in natural resource conservation to have occurred in the 20th century, and this in four waves: a first wave (1901-1909) that was significantly influenced by President Theodore Roosevelt; a second wave (1933-1941) during the presidency of Franklin D. Roosevelt; a third wave (1960-1980) during the presidency of Nixon, Ford, and Carter; and a fourth wave (1980-present) of global scope.

Perceptions of Conservation and Landscape

Perception includes more than sensory experience: According to Middleman and Goldberg Wood” (1991:244), “these perceptual systems extract and combine information to give meaning to sensations. The authors point out that perception is automatic and fixed. Pelsler

(2010:359) brings up Reid's perception of conservation: "perception just is conception of and belief in a material object, occasioned by sensation" and further describes that Reid saw belief to have a central role in perception. There are different motivations for conservation; conservation is either conducted for the benefits of nature or for the benefits of humanity. Practicing conservation to serve nature is considered to be an intrinsic value while pursuing conservation for humans is considered an extrinsic value. The authors see it as a challenge for conservation to create a community that gains strength from pluralistic viewpoints (Green et al., 2015).

In recent developments landscape aesthetics has been differentiated into objective and subjective aesthetics. The objective approaches "attempt to measure the significance of environmental features assuming that proper management of these values will enhance the aesthetic experience" (Kennedy et al., 1988:40) and focuses primarily on the visual aspects of landscape. Subjective aesthetics look at the "importance and meaning of aesthetics from the human point of view" and analyzes how humans are projecting their emotions, ideas, and feelings onto the surrounding landscape. "The intrinsic meanings of the environment include social, cultural, historical, or personal values" (Kennedy et al., 1988:41).

Kalivoda et al. (2014) state that in the last decades the opinion that the landscape's visual aesthetic quality should be seen as a resource that is valuable to be maintained is increasingly being recognized. The authors differentiate between two approaches of viewing visual aesthetic quality of a landscape. The objective perspective sees the visual aesthetic quality to be due to the landscape's elements and attributes while the subjective perspective approach sees the landscape to be a product of the human mind. Scenery is among the most commonly used ways to assess the health of landscapes. Ribe (2002: 759) expresses that "the full nature of aesthetic, affective

perceptions of outdoor environments versus cognitive perceptions of approval is complex and unknown.” The author studied the relationship between the perceptions of beauty and acceptability of landscape management and concluded that perceptions of beauty can serve as a strong determinant of acceptability perceptions, however, they cannot be used as the alone measure of landscape management acceptability.

Green et al. (2015:386) see pluralism as a major contributor to conservation success by stating: “It follows that positive change (i.e. conservation success) is defined by individuals and groups from diverse belief systems, social structures, and backgrounds who hold equally diverse values for biodiversity.”

Collaboration in Conservation

The management of America’s natural resources can oftentimes be an emotional and controversial process. Over a time span of several years, a shift in the way the public sees the use and management of public resources has taken place and acceptance for the involvement of stakeholders and land managing agencies is increasing (Schuett et al., 2010). Schuett et al. (2001:590) state that “The public simply wants to be more involved in the decision-making process” and that their study has identified factors to success in collaborative initiatives. The study identified factors that create a collaborative effort which the participants feel to be productive: The factors are clear goals and vision of what is to be accomplished, a good exchange of information between the involved parties, interpersonal communication, as well as trust, respect, relationship building and effective leadership. The authors further point out that the collaborative initiative needs to produce viable results (Schuett et al., 2001).

Effective conservation of biodiversity is essential for human survival and maintenance of the ecosystem processes. Although some conservation approaches have been successful and the interest of the public and controversial process and governments in living sustainably increases, biodiversity is declining. According to Rands et al. (2010), conservation paradigms, practices, and policies have been variably successful.

The loss of habitat and biodiversity have led to the spending of considerable amounts of resources on conservation interventions, however the prioritizing of actions can be challenging, especially if multiple actors are present in the same area undertaking different conservation strategies with different objectives (Gordon et al., 2012). It is common that when multiple organizations are practicing conservation strategies in the same landscape, their focus, resources, and geographic extent vary. The actions of one agency can contribute to the success of other agencies and strategic collaboration can increase their efficiencies. Gordon et al. conclude that the model they have produced indicates that the value of collaboration can change significantly depending on the situation. The authors point out that the transaction costs associated with collaboration has to be compared to the potential benefits resulting from it.

Andrade and Rhodes (2012) conducted an analysis of published case studies to find the level of compliance of communities with protected areas with regard to seven factors, the age of the protected area, the area the is being protected, the existence of a buffer zone, the level of protection, the gross domestic product per capita, the population density surrounding the protected area, and the local participation in the management of the protected area. The authors state that many protected areas have been established through an exclusionary top-down approach, without taking social, cultural, and political issues in consideration. Frequently,

communities are either removed from their land or no longer allowed to use natural resources that are important components of their livelihoods, which can cause hostile attitudes towards conservation strategies. The importance of incorporating a participatory approach into decision-making regarding protected areas has been widely recognized in the literature. They conclude that community participation in the management of protected areas may be one of the most important strategies for developing acceptance of the protected areas by the local community.

Kark et al. (2015) analyze the importance, benefits, and limitations of the incorporation of collaboration into conservation efforts. The features that are to be protected through conservation such as endangered species or ecosystems extend across borders or jurisdictional boundaries making collaboration across these boundaries important. The authors define collaboration as “two or more organizational actors with shared interests and/or collective responsibility working to pursue complex goals” (2015:12) and state that collaboration can occur among a number of different actors and across boundaries. Collaboration in conservation can save resources and improve management efficiency. Kark et al. (2015) further discuss collaboration in conservation on different scales: global, multi- country, and regional. The collaboration in the study area falls into collaboration within a country with the creation of stakeholder networks.

Wyborn and Bixler (2013:64) express that “Successful collaboration depends on trust and tight social networks built through personal relationships”. The authors further state that a shared identity and vision are important to successfully practicing environmental stewardship and that different actors can be brought together through dialogue forums (Wyborn and Bixler, 2013).

Game Theory

This research serves as a ‘contributor to game theory’ as it analyses the interaction between different players involved in conservation work and conceptualizes the findings through game theory. Game theory is a field that studies decision-making and conflicts as well as cooperation between individual players. The theory originates in mathematics but can be applied to multiple other disciplines.

Definition

Peaucelle and Shapun (1972:348) state “Game theory provides the logical reasoning formalized by mathematical reasoning for the purpose of understanding or advising the action of free actors under well-defined conditions of conflict.” While the mathematical theory is based on logic and determines the behavior of rational individuals in a game situation under a number of rules, the practical aspect of game theory isolates the game situation in human reality and applies it to mathematical results (Peaucelle and Shapun, 1972).

Kreps (1990) discusses game theory as a help to economists to understand and predict what is going to happen in economic contexts. According to the author, it consists of two branches, co-operative game theory, in which the unit of analysis is the group or coalition, and non-cooperative game theory, in which the unit of analysis is the individual participant in the game who attempts to achieve a good outcome for him or herself within defined rules and possibilities.

Rubinstein (1991) points out that game theory can be applied in the real world and goes beyond the matter of abstract mathematics. He sees game theory to be the analysis of the use of

concepts in social reasoning in conflict situations and points out it is both abstract and concrete and that the abstract formal concepts have to be connected with reality. The author says that game theory achieves two tasks, building models based on intuition and using deductive arguments to find truths about the world. This study contributes mainly to the first task by analyzing how the conservation practices are carried about and conceptualizing them through game theory and thus developing a simple model.

Rubinstein (1991) argues that deductive arguments by themselves cannot be used to find truths. He further states that games include explicit data on the reasoning process of the player and that the reasoning processes should be described in more detail. He concludes that the incorporation of psychological elements into game theory will make it more meaningful.

Romp (1997) expresses that game theory addresses how mutually interdependent rational individuals make decisions. The theory is applied mostly in economics. Peters (2008) defines game theory to be a formal, mathematical discipline that studies the cooperation and competition between involved parties, and is commonly applied in economics. Hepple (2009) defines it as a theory of interdependent decision-making in which individuals (“players”) chose their actions (“strategies”) based on knowledge about the payoffs (“cost and benefits”) of various joint outcomes, but limited or no knowledge of the actions of other players. Hepple (2009) further explains that game theory tries to find equilibrium strategies of players under rational decision-making. Castree et al. (2013) define it as the study of behavior of rational decision-makers in situations in which an individual’s success is and the choices of others are interdependent, and it identifies patterns of conflict and cooperation through the use of statistics.

History of Game Theory

Charlton (1981) describes that the mathematical origin of game theory can be traced back to papers by Borel and von Neumann (1921, 1928). However, according to Gambarelli and Owen (2004), the real beginnings of modern game theory date back to 1944, when game theory can be said to have started as a formal science with the publication of 'Theory of Games and Economic Behavior' by John von Neumann and Oskar Morgenstern (1944). Works from prior to this date were only fragmented and did not attract much attention. Peaucelle and Shakun (1972) point out that von Neumann gave the solution to the basic theorems of the theory, while Morgenstern sought applications of the theory in economics. According to Fang et al. (2010) cooperative game theory had developed its peak in the 1950s, when also non-cooperative game theory appeared. Erickson (2015) explains that after this ground-breaking publication, game theory got established in a number of fields including mathematics, operations research, social psychology, political science, economics, philosophy, and evolutionary biology. Game theory was strongly discussed during the cold war and that many common problems and concepts have become difficult to be voiced except for when using game-theoretic language.

Applications of Game Theory

Chalton (1981) points out that game theory has been used little as a tool for planners and mentions that it is brought up in a number of planning text books but never discussed in detail. He further points out the relevance of game theory to planning by stating that planners are concerned with decision-making under uncertainties. However, according to Charlton (1981) geographers used game theory in order to explain locational decisions and farming practices.

Sutherland (2006) reviews methods used to predict ecological consequences of environmental change. He comments that ecology should become more predictive, which would help the discipline to be taken more seriously. He further explains that game-theory population models are used to find population-level phenomena based on the decisions made by individuals that are responding to changes of resources. This approach allows researchers to make predictions for how species respond to new conditions; however, the some models require the input of considerable amounts of information.

Hepple (2009) points out that game theory is primarily being used by economists and is, due to little contact between economic geography and recent economics, used by only few geographers. Mayhew (2009) states that in geography, game theory is commonly used to overcome the environment and gives the example of studies that applied game theory to real-life issues in natural resources and the environment. Frank and Sarkar (2010) state that game theory has been used by social scientists for modeling strategic interaction and that it can easily be adapted to model conflicts between stakeholders with regards to conservation. Gordon et al. (2012) articulate that the importance of cost balancing and knowledge can be useful to approach multi-agency interactions by modeling them as so-called games. A game-theory approach can be used to analyze the outcomes of conservation approaches in a landscape with different conservation agencies dealing with different biological features. The interactions between the agencies are assumed to be of critical importance to the overall success of conservation approaches in the area they operate in. According to Castree et al. (2013), geography uses game theory mainly to analyze firm behavior and political voting.

Colyvan et al. (2011) point out that many decisions in conservation biology and natural resource management face differing interests. They state that game theory should be part of the decision-making tools used in conservation and natural resource management. However, they also mention that appropriate implementation of game theory by skilled decision makers is crucial. Even if formal methods of game theory are not practical for a given situation, considering the issue from a game-theoretic perspective can be beneficial for clarifying the issue and improving informal decision-making. Game theory provides a general and powerful framework for the analysis of environmental decisions, which they consider to be the theory's main value. The use of game theory leads to the adaptation of a dynamical approach to decisions, and enhances the awareness of consequences of environmental decisions.

Sharma and Bhattacharya (2013) discuss the issue of tensions in the knowledge flow in organizations and how game theory can be used to solve these issues. They point out that a prescriptive knowledge policy framework may be developed through game theoretic modeling. The theory uses a simplistic view on human predictability and does not include so-called soft factors like human emotions. Game theoretic reasoning can be used as a guide for organizations for applying strategies in order to achieve their desired outcomes and can be used as a perspective of the possibilities in order to frame decisions. However, game theoretic approaches should not be used to make predictions about the future.

Applications of Game Theory in Qualitative Studies

Swedberg and Augier (2003:16) define sociology for which their model of game theory is being created to be “a distinct social science discipline” and further “People create social structure, and these are then passed on to the next generation. Social structures encompass norms

and institutions, and the individual actor orients his or her behavior to other individuals as well as to norms and institutions”. The authors voice the opinion that two questions need to be discussed if developing a sociological game theory analysis: how interactions are handled in game theory and subjectivity.

Tarrant et al. (2010:443) state that game theory suggests “there is little inherent in a single interaction to provide a foundation for secure trust“. This part of game theory relates strongly to the study’s results. Numerous interviewees emphasized that trust developed while working together for a longer time period. Statements by the interviewees included that initially the issues on which they agree were targeted and once trust had been established the issues on which they had originally been divided on were targeted. Tarrant et al. (2010:445) state that game theory would predict that “a history of past interactions and the anticipation of future interactions provide a context that makes it possible for trust to build and become secure”.

Graboś (2005) explains that traditionally game theory is a purely quantitative representation of a game but that recently interest in qualitative approaches to decision-making is rising. The author proposes a qualitative approach to game theory in the context of logic programming. He expresses that instead of using a payoff function to reflect a player’s preferred strategy, ordered disjunction is applied for encoding a priority among different possibilities. The approach takes the actions of other players into account.

Graboś (2005) found that logic programs with ordered disjunction can be successfully used for a qualitative representation and a reasoning tool for decision making problems with multiple agents. The author sees it as an advantage of qualitative approaches that preferences can be expressed and that new equilibria can be defined quantitatively. Graboś (2005) further points

out that game theory includes two modules, formal language, which describes the interaction among players, and solution concepts. The author further discusses the distinction between zero-sum and non-zero-sum games. He says that in zero sum games all payoffs add up to zero while in non-zero-sum games the net results are either greater or less than zero. There is a differentiation between strategic or normal and extensive forms of games and one can also differentiate between games in which all players have complete knowledge, games in which all players have a common knowledge, and games in which players have no knowledge about the other players' payoffs.

Games can be separated into non-cooperative and cooperative games. In the non-cooperative model each player takes the strategies that are expected from other players into account, however cooperation among players only occurs in the cooperative model (Graboś, 2005). Swedberg and Augier (2003) discuss cooperative and non-cooperative games in the context of Nash's contribution to game theory. It is states that in non-cooperative games no coalitions exist and that the participants act independently and that there is no collaboration or communication among them (Nash in Swedberg and Augier, 2003).

Application of Game Theory in this Research

The thesis aims to connect the theoretical background of game theory to conservation history and practices in the study area. The practicing of conservation is to be considered the 'game' in this research. The individuals and organizations in the study area influencing the way conservation is being practices are considered to be the 'players' in the 'game'.

The goal is to see if game theory can be used to conceptualize the development of conservation, the conservation practices, and the factors for successful conservation. The literature suggests an interaction between several different conservation agencies and individuals

from the study area to be a major component of the conservation work. Further, the literature suggested that collaborative conservation approaches tend to be more successful. As this indicates a strong importance of the interaction between the different involved players, game theory was seen as a useful tool to interpret these interactions.

The research questions aimed to find how the game of conservation has developed, how the game of conservation operates now, and how the rules of the game have changed in the process. The research aims at finding what makes the game of conservation in the study area successful. It is hypothesized that the game needs to be well adapted to the local area and that a strong participation of local players contributes to success. The strong participation of local players means that more strategies towards the same goal are applied and that fewer players in the game are working towards achieving a different goal. The methodology of semi-structured interviews was chosen in order to get in-depth insight into the game of conservation. The question catalogue was designed so that I would gain insights into the players' decision-making, on the strategies they apply in the game of conservation, and on the contributors to successful practicing of conservation.

The game of conservation would be considered a non-zero sum game. The goal of the game is to maximize environmental protection on the land. If the players play the game highly successfully, positive sums would be the result. If the strategies the players are using are not successful or not sufficiently successful, the sum of the payoffs would be negative and thus result in less environmental protection

Behavioral Theories used in this Research

When analyzing the behavior of the players involved in the game of conservation in the study area, this research basically follows the assumption of discrete choice models. Erickson (2010:389) describes game theory as a “theory of rational choice”. In this research, it is assumed that the players in the game of conservation follow such rational choices.

Golledge and Timmermans (1988:xx) state that discrete choice models can be seen as “applications of utility theory to the analysis of individual spatial choice behaviour”. These types of models see an individual presented with a number of alternative choices. The individual’s preference among the given set of choices can be described using a utility function. The authors describe this utility function to consist of a deterministic component, representing the systematic effects the variables selected by the individual have on the choice behavior, and a random component accounting for unobserved variables. The model predicts probabilities for randomly selected individuals to choose any of the given choices. According to the authors, a “utility-maximizing behaviour” (1988:xx) is assumed. It is further assumed that the choice probabilities “are equal to the probability that the utility of a particular choice alternative is greater than the utility associated with all other choice differences” (1988:xx). Parameters of the models are estimated, mostly through maximum likelihood techniques.

Simon (1959) discusses the utility function in his article “Theories of Decision-Making in Economics and Behavioral Science”. Simon describes that when von Neumann and Morgenstern developed their theory of games, they also showed that if choice situations included choices with uncertain prospects “cardinal utilities could be assigned to the outcomes in an unequivocal way” (1959:257). If the subjects behave consistently according to Simon, one can cardinally measure

the utilities, which have different outcomes for the subject. Under the so-called axiom of choice, Von Neumann and Morgenstern expect people to act in a way that maximize the expected value for them. The expected value results from the “average, weighted by the probabilities of the alternative outcomes of a choice” (Simon, 1959:257). Simon points out that the theory can be tested based on the assumption that the objective probabilities matched with the subjective probabilities the subjects assigned to the alternatives. Simon further says that more realistic scenarios, which are more complicated, choices tend to be less consistent (Simon, 1959).

Simon (1955) articulates that in many models of rational choice, specific assumptions are seen as constraints within which rational adaptation takes place. Common constraints include “(1) the set of alternatives open to choice, (2) the relationships that determine the pay-offs (“satisfaction”, “goal attainment”) as a function of the alternative that is chosen, and (3) the preference-ordering among pay-offs” (Simon, 1955:100). These constraints are not seen to be objections of rational calculation.

The players are presented with a set of alternative choices in conservation and they rationally choose the option with the maximum benefit. In the study at hand, the maximum value would be the largest possible success in conservation work. What precisely is to be maximized would depend on the focus of the individual player’s work in conservation. Individuals working in wildlife conservation would be likely to work towards maximum protection for wildlife, while for someone working in education about conservation would aim more towards providing a good education to a large number of people. However, it also needs to be pointed out that the people’s estimate of outcomes is not completely objective and subjective assumed probabilities do not always match up. It can be expected that the players in the game of conservation are also to a

certain degree influenced by emotions and personal values by their estimation of probabilities for the different outcomes and thus do not act completely rationally as assumed in the behavioral model. The constraints would be the choices available for the individual, which would vary depending on their role in the game of conservation and their influence on strategies. The relationships determining pay-offs would be relationships to others involved in the game of conservation. Preference-ordering of the pay-offs would depend on the importance various aspects of conservation would have on the individual.

CHAPTER 4: METHODOLOGY

Nature of this Study

This thesis is a qualitative study that uses an analysis of interviews to develop a history of conservation in the Blackfoot and Swan Valleys, Montana. Smythe and Giddings (2007:37) state that qualitative research “always seeks to find the issue of concern in its everyday context, and by means of interviews and/or observations and/or accessing text, hear the voices of those closely involved”. Smythe and Giddings (2007:57) come to the conclusion that qualitative research “is always about ‘people’ and how they are in their interactions together, be it one on one, or caught up in bigger organizational and political institutions and structures”. A major part of my analysis is looking at people’s everyday experience with conservation and their interactions with each other.

This study uses the theoretical background of game theory and analyzes the history of conservation in the study area in front of this background. The study design can be described by stating that the real world issues and interactions are analyzed and then applied to the theoretical background. The study contains elements of both inductive and deductive reasoning: Deductive elements found in the study are mainly that a theory that has previously been established is used in order to explain the results of the study. These elements match the description of “top down” model building (Glaser in Gebhardt et al., 2007:536). Inductive elements in the study are that from the data found in the study, a specific model is developed using game theory that aims to represent conservation work in the study area. This principle can be described as “bottom up” (Glaser in Gebhardt et al., 2007:535). Gill et al. (2008) note that interviews are among the most commonly used methods of data collection in qualitative research and can be used to analyze the

views, experiences, beliefs, and motivations of the participants. Smythe and Giddings (2007:49) describe that qualitative interviews should be dependent on the person to person interaction, and the interview “is not a structured list of questions asked one-after-the-other, because this is not going to yield rich conversational data, and may steer the person away from telling the stories they know matter most”.

Whiting (2008) differentiates into interviews into structured, semi-structured, and unstructured interviews. The author describes structured interviews to consist of a questionnaire with closed questions and to be specifically useful to generate quantitative data. Semi-structured interviews are organized around pre-designed questions, while other questions come up during the interview. Unstructured interviews are described as guided conversations with questions emerging as the researcher learns about the setting. Semi-structured interviews are one of the most commonly used qualitative methods by geographers (Clifford and Valentine, 2003).

The reason I chose to use semi-structured interviews in the research was to have flexibility in adapting the interview during the interview process, but still be able conduct comparisons between certain aspects of the interviews. Gill et al. (2008: 291) similarly describe the advantage of semi-structured interviews with the following words: “The flexibility of this approach, particularly compared to structured interview, also allows for the discovery of elaboration of information that is important to the participants but may not have been thought of as pertinent by the research team.”

Preparation of the Interviews

The goal of the project was to gain in depth knowledge about the history of conservation in the study area and to gain insights into how and why the conservation movement was started in

the area. Because of these research objectives the decision was made to interview people who had actively been involved in conservation in the area and thus to gain knowledge of the perspectives of key players in the conservation movement. While the people who were interviewed do not represent a representative sample of the overall population of the study area, interviewing them allowed gaining in depth about their involvement and the development in the area. The goal was to find people involved in different projects in the study area to get a general sense of how the how conservation movement developed. If a more diverse group of interviewees had been chosen it would not have been possible to gain knowledge at the same depth as was done in the study.

I adapted parts of the interviews specifically to the individual interviewee in order to learn as much as possible about every interviewee's field of expertise to ensure that a comprehensive history could be written. These aspects were specifically the history of the interviewees' organizations as well as various projects the interviewees have been involved with in the past. The themes that were asked were the same in the various interviews but the questions were phrased based on the previous research to match the interviewee. For example, if I had found through research that the interviewee is specifically involved in a certain conservation project, I would follow up on this. The main reason for creating personalized questions was to show the interviewees that I had done previous research with the goal of building up a good relationship with them. Additionally, this approach allowed me to go into depth about the various aspects interviewees were involved with the goal of getting a good overall picture of the history of conservation work as well as of the organizations' work. Other parts of the interviews were asked similarly in each interview including specifically questions regarding changes in the perception of conservation or about contributors to successful conservation. Further, all interviewees were asked about major successes and current problems.

Prior to contacting individuals, a catalogue of interview questions was developed. The questions in the catalogue were developed so that answers to the research questions could be found. The interviewees were asked general questions about their work in conservation and projects they were currently involved with in order to understand the currently practiced work in the study area, which needed to be understood if statements about the success of this work were to be made. These questions about the interviewees' personal involvement also served the function of building a positive relationship with the interviewee. The interviewees were asked about their opinion on why the conservation work in the study area is successful. The focus of the interviews lay on the history of the conservation movement in the study area, the interviewees' involvement in it or knowledge of it, and the changes in conservation work they experienced. Questions aimed to provide answers to the research question on how and why the conservation movement developed in the study area. Questions were also based on the findings in the literature, for example that the conservation work in the Blackfoot and Swan Valleys was described as successful. The goal of asking questions about the success of conservation was to gain the opinions on what makes conservation approaches successful; however, I noticed later that the way the question was phrased could have had some influence on the responses. Other questions based on what had been found in the literature research, questions about conservation easements, which were referred to as an important part of the conservation work.

From this catalogue, questions were selected individually for each of the interviewee. All interviewees that are involved in conservation organizations were asked about the history of their organization, the organization's history of involvement in conservation, and the interviewees' work tasks and previous work or projects. Interviewees that had worked for the Forest Service or the University of Montana through Lubrecht Forest were similarly asked about historic

involvement of the agency and well as projects they had personally been involved with. The interviewees were further asked about major successes of their organization and about current struggles they were facing. Landowners were asked about how long the land had been in their possession, how they practice conservation, and specifically if they use conservation easements. All interviewees were asked about their knowledge of the general history of conservation in the study area, reasons conservation is successful, and how conservation had changed during the time they had been involved in it. The general question catalog can be found in the appendix.

The Interviewing Process:

During the interviewing process, the questions were altered or adapted depending on the responses the interviewee was giving. If the interviewee had already given answers to a question I had planned to ask through a previous answer, I eliminated the question. While this might make it harder to make an exact comparison between interviews I felt like it would show the interviewees that I had paid attention to what they were saying rather than to ask questions that had already been answered. Using semi-structured interviews also made it possible to ask additional questions, to go more in depth in some of the topics the interviewees were addressing, and to eliminate questions the interviewee had already answered in previous questions. Questions were asked in a way that matched the individual conversation with each of the interviewees. The chosen methodology enabled me to have a personalized discussion with each of the interviewees while still being able to make comparisons between the interviews.

The proposed questions were approved by the Institutional Review Board (IRB) at the University of Montana on July 17th, 2015. The risk for the participants in the interview process was assumed to be minimal. The potential interviewees were not assumed to be part of a

vulnerable population and were to be at least 18 years of age. A form of informed consent included informing the interviewees about voluntary participation and that they could withdraw at any time. It further stated that the interviewees had the right to ask questions at any point, could obtain a copy of the study's results, and that privacy would be respected were presented to be signed by interviewees before interviews were conducted as suggested by Creswell (2003). The informed consent form further informed the participant about the purpose and procedure of the study as well as potential benefits for the participant and the community. Interviewees who were interviewed over the telephone were verbally informed about the contents of the informed consent form.

The selection of the interviewees followed the basic principle of 'snowball sampling' that refers to a chain referral sampling, in which an initial sample is taken and as information about other sampling elements are obtained from the initial sample (Berg, 2006). After most interviews, the interviewees were asked if they could recommend other potential interviewees. Reasons for the omitting to ask for recommendations of who else to interview were that some of the interviewees seemed to be under time pressure, that the interview had already taken longer than predicted, or that it seemed to me that it would disturb the conversation with the interviewee. In several interviews the interviewee brought up other people to contact so that I did not need to ask. In addition to relying on recommendation by the interviewees, I was also reaching out to other potential interviewees from online research or based on recommendation from other experts.

Almost all interviewees were contacted by email. The email contained a brief explanation of my research with the question if they were willing to participate in it. Contacting people by email was chosen because it allowed the potential interviewees to think about the request to

participate in the study and did not create pressure to give an immediate answer. In some cases previous interviewees established a first contact with potential interviewees, prior to me contacting them by email. In one case I contacted an interviewee by phone that I had met in person at an initial trip to the study area before my main fieldwork began. In another I approached an interviewee in person at a conservation community event in the Swan Valley and asked for an interview, and later followed up the contact by email in order to schedule an interview. In a third case an interviewee contacted another interviewee by phone immediately following my meeting with him and arranging another interview on the same day.

Overall the responses to interview requests were positive and the reactions by the people who had been contacted were very friendly: the majority of the people who had been contacted agreed to give an interview. Twenty-four people were asked to give an interview, twenty of them initially by email. Of these, fifteen ended up giving an interview. In about three cases the potential interviewees responded positively to an interview but there was no success in scheduling the interview, mainly due to busy schedules. In about two cases the contacted individuals declined the interview. Declines for interviews were explained with a lack of knowledge about the research topic and in both cases accommodated with recommendations for other people to contact for an interview. From about two potential sources, no response was received. In about two cases contacting individuals was not successful due to incorrect email addresses.

Interviewees

Interviewees were selected so that representatives from different organizations involved in the study area would be interviewed. The goal was to include different conservation

organizations, federal or state agencies, and local landowners. Fourteen interviews with a total of fifteen people were conducted. Farmer et al. (2011:832) state that according to Creswell (2003), inferences can be drawn from a minimum of ten interviews.

The interviewees include landowners and employees, former employees, board members, or otherwise involved people from the following organizations and agencies: The Swan Ecosystem Center, Northwest Connections, the Blackfoot Challenge, Trout Unlimited, the Forest Service, Lubrecht Forest, Sculpture in the Wild, and the Montana Wilderness Association are organizations with which the interviewees were associated, either through current or past employment or civic engagement. Three of the interviewees were affiliated with Northwest Connections, four with the Swan Ecosystem Center, three with the Blackfoot Challenge, two with Trout Unlimited, and one with Sculpture in the Wild. One representative of the Forest Service and the University of Montana through Lubrecht Forest were interviewed.

At least three interviewees were landowners in the study area with at least one of them being a rancher. Several interviewees are associated with several conservation organizations or are both landowners and members of the conservation agencies. Further, it is possible that interviewees are members of an organization they did not talk about in the interview or that they work for an organization and did not mention that they also own land in the study area. Approximately half of the interviewees were mainly involved with the Blackfoot Valley and half of them were mainly involved with the Swan Valley. However, because several interviewees were involved in both valleys and several agencies work in both valleys, it was not possible to determine the exact proportion by which each of the valleys is represented in the interviewees. Of all interviewees, six were women and eight were men. Data on age was not specifically asked

from the interviewees but from statements made during the interviews it can be estimated that probably four interviewees were younger than forty years, six interviewees were between forty and sixty years old, and five interviewees were older than sixty years.

The Interviews

Thirteen of the interviews were conducted in one-on-one meeting with the interviewee; one interview was conducted in the presence of the interviewee's wife who also provided some of the responses and due to her contributions was also seen as an interviewee. Eleven of the interviews have been conducted in person, and three of the interviews have been conducted over the phone. The in-person interviews were either conducted at the interviewee's home or workplace, or in coffee shops in Missoula. A coffee shop in Missoula was the location where the largest number of interviews was conducted. Generally, the interviewee picked the meeting place, although I made suggestions if the interviewee asked about possible meeting places in Missoula. I discussed date and time of the meeting with the interviewee but tried to make it as convenient as possible for the interviewee. The initial goal was to conduct all interviews in person; however, it was not possible to meet three interviewees in person, either because of too large distances between Missoula and the interviewees' home or due to time conflicts. These interviews were conducted over the phone. Participants were asked if they consented to being recorded. Since all of the interviewees consented, all interviews were recorded. The length of the interviews was between approximately thirty and ninety minutes.

A typical interview would proceed along these lines: I would contact the interviewee by email, the interviewee would respond and we would agree on a date and time to meet. Before the interview I would research about the interviewee and his or her organization and select the

questions from the question catalog that are most appropriate for the interviewee and bring these questions to the interview. The meeting with the interviewee would start with an introduction and me explaining my studies with the goal to build trust. Small talk often included topics such as my trip to the study area or the interviewee's trip to Missoula. After this initial phase of small talk I would provide the interviewee with the form of informed consent, would provide a brief explanation of it, and would allowed the interviewee to take the time to read and sign the form. I would offer the interviewees to send them my thesis once it was completed. Although it was included in the form of consent I would then ask if I could record the interview and once the interviewee had consented I would start recording, generally with my phone. While asking the questions, I would use my prepared notes as a reminder but would word the questions in a way to adjust them to the ongoing conversation with the interviewee. After I had asked a question I would let the interviewee talk and not interrupt him or her. While the interviewee was talking I would use non-verbal communication to signal the interviewee I was paying attention and was interested in what he or she was saying. The order in which the questions were asked would be adjusted depending on the flow of the conversation. Generally I would start by asking the interviewees to talk about their work and projects, followed by questions about the organization's history and the history of conservation in general. My idea was that talking about them would help the interviewees get comfortable with talking in front of the recorder, would help build a good relationship with them by showing interest in their work, and give me an idea about the interviewees work in conservation. Then questions about success and problems with conservation work were asked. The typical interview would end with questions about the interviewee's personal definition of conservation and recommendations for other people to interview. Once all

questions were answered I would turn off the recording device and thank the interviewee for their time. Sometimes private conversation with the interviewee would follow.

The interviewees expressed strong interest in the topic and strong willingness to help with the research. Many of the interviewees offered further help and recommended other people to contact for interviews.

The location where the interviews were conducted did not seem to have major effects on the way the interviewees responded to questions. Minor effects from the environment on the interviews are background noises in some of the coffee shops. However, differences stood out when comparing the telephone interviews with the in-person interviews. Technical issues made the telephone interviews harder to conduct and affected the flow of the interview. Additionally, the recording of the in-person interviews generally had a much higher quality than the telephone interviews. The lower quality of particularly one of the telephone interviews makes it likely that fewer details have been recorded in this interview.

Interview Transcription

I transcribed the recorded interviews verbatim into *Microsoft Word* Documents. Most of the interviews were played in *Windows Media Player* for transcribing. About four interviews were played in *Express Scribe Transcription Software*, for these interviews a foot pedal was used to control the speed of the interviews, which made a faster transcribing process possible. Britten (1995) described the transcribing of the interviews to be a highly time consuming process and estimates that one hour of interview can take six to seven hours to transcribe. This relationship between interview and transcribing time matches approximately what I observed during my thesis. The transcription of the interviews posed some unexpected difficulty as some recordings

were difficult to understand. The technology had been tested before the interviews were conducted but background noises had been underestimated. Particularly with the interviews that had been recorded in coffee shops, loud background noise posed a problem that led to me not being able to understand and transcribe some words and in some cases sentences of the interview. For the three phone interviews, recorders other than my phone had to be used, as my phone does not allow to record while having an active call. Two different recorders were used. The recording produced by one of the recorders produced was of very poor quality, while the two recordings produced with the other recorder were of a good quality.

Once the interviews had been transcribed, *NVivo* was used to organize the responses by the interviewees by topics. Before the interviews had been imported, the interviewees' names were substituted for letters which were generated based on the outcome from a random number generator. The goal was to anonymize the interviews so that the interviewees could not be directly identified.

Analysis

The analysis of the interviews in *NVivo* was started by importing the anonymized interviews into the software. Initial nodes were created in *NVivo* based on expectations of important themes developed during the interviewing and transcribing processes. Initial nodes in *NVivo* included conservation history and current conservation practiced. Each of these main nodes was subdivided into sub-nodes. Again initial sub-nodes were created based on initial observations on what would be important. These initial assumptions were made during the transcribing process. The following process was to go through one interview at a time and select responses or parts of the responses and assign them to the created nodes and sub-nodes. Text was

assigned to all nodes and sub-nodes I saw connections to. If a topic could be identified for a quote to relate to that did not exist in *NVivo*, the node was created. Quotes that did not relate to the research, for example private communication with the interviewees were eliminated from the coding process. After an initial coding had been conducted for all interviews, I analyzed the interviews a second time to ensure that no mistakes had been made and that the nodes that were created during the coding process contained all relevant statements from the interviewees.

The main nodes that were created during the process were conservation history, current conservation strategies, perception, and collaboration as a major contributor to successful conservation. Each of these main nodes contained a number of sub-nodes. Under the main node conservation history the following sub-nodes were organized: Blackfoot Challenge, Northwest Connections, Swan Ecosystem Center, Merging of the Swan Ecosystem Center and Northwest Connections, Trout Unlimited, Wilderness Areas, Montana Wilderness Association, Blackfoot Clearwater Stewardship Project, Conservation Easements, Fire Management, Lubrecht Forest, and Plum Creek Timber. The main node Conservation Strategies contained the sub-nodes Education, Forest Management, Conservation Easements, Recreation, Interaction with Wildlife, and Struggles in Conservation Work, The main node Perception included the sub-nodes Definitions of Conservation, Perception about Conservation Changes, and Perception about the Study Area. The main node Collaboration included the sub-nodes Collaboration in the Local Community, Collaboration of Organizations/Agencies, Consensus and Compromising, and Conservation and Economy.

The coding results showed that each of the organizations was represented as nodes in the conservation history part and the current strategies part. A closer analysis showed that it was

difficult to make a clear division between the history and the current strategies because oftentimes the development of strategies into the current practice was described. Due to these difficulties, the strategies were reorganized and analyzed by different types of strategies.

The interviewees' personal definition of conservation was initially a separate node. However, because it related to the interviewees' perception the decision was made to group perception of conservation, changes in perception of conservation, and perception of the study area as being special into one main topic.

Initially, a major node had been 'contributors to successful conservation', based on the research question. A deeper look into the coded interviews however showed, that 'collaboration' came up as a major theme in responses to the question of successful conservation. It was also repeatedly named in other aspects of the interviews. Because in the interviews, collaboration stood out as a highly important theme regarding successful conservation work in the study area, the decision was made to devote a chapter to collaboration in conservation and to use sub-nodes to discuss various aspects of collaboration in conservation work, such as collaboration between agencies and the local community, and how communication and compromising contribute to successful collaboration.

I noticed that several sub-nodes only contained one quote and made the decision to remove these nodes. Either the quotes these nodes contained were also contained in other nodes or they did not stand in connection with other statements and did not appear to have a major importance, in which case they were removed. An example for a node that was removed is the sub-node 'wetlands' under the node 'current conservation practices'. The node had been created during the first analysis of the interview. When the other interviews were analyzed it stood out

that the topic ‘wetlands’ did not come up in any other interviews with regard to current conservation efforts. Therefore the decision was made to remove the sub-node and to include the information about wetlands in the context in which it had been brought up, which is ‘conservation easements’.

Maps of the study area to allow the reader to get a better picture of the study area and the study area’s location were produced using *ArcMap*, *Adobe Illustrator*, and *Adobe Photoshop*.

CHAPTER 5: CONSERVATION HISTORY

Literature Analysis

Conservation Work in the Blackfoot Valley

Historically, the Blackfoot River has been the main conveyor of logs for the Bonner Mill (Spritzer, 2012). The settlement in Lincoln dates back to 1865, when gold was discovered in a number of streams to the northwest of the town. After no more gold was found, the settlement almost reverted to wilderness, until homesteaders began ranching on the Upper Blackfoot River.

Pollution in the Blackfoot River comes to a large degree from mining on the river's headwaters, and especially the wastewater impoundment of the Milk Horse Mine is a significant problem. In the 1970s, the eastern dam of the mine had bust which led to a spill of heavy metals, floury silt, and toxic waste, which resulted in killing about 85 percent of the fish in the headwater's upper section. The dam had been reconstructed afterwards by the Anaconda Company; however, the U.S. Forest Service has condemned it being unsafe and has further noted a significant leakage into the Blackfoot River. The Anaconda Company was later bought by Atlantic Richfield Company (ARCO), which was then bought by British Petroleum (BP). Sullivan (2008) further considers the American Smelting and Refining Company (ASARCO) to be another party responsible for pollution of the headwaters of the Blackfoot River. The company, however, has gone bankrupt (Sullivan, 2008).

In 1972, the Scapegoat became a designated wilderness. The wilderness designation was due to strong involvement of citizens, which began in the 1960s, Cecil Garland had played a

particularly large role in the designation of the Scapegoat as wilderness (Graetz and Graetz, 2004).

Paul Roos was one of many residents of the Blackfoot Valley who had concerns about the river. Over a time span of 30 years, Roos's and other locals' efforts resulted in "an association of national acclaim entitled the Blackfoot Challenge" (Sullivan, 2008:130-131). The majority of the people getting involved with the Blackfoot Challenge were ranchers, loggers, and business owners. Most of them had grown up close to the river and saw the need for change. Additionally, newly arriving people joined the Blackfoot Challenge. Further input was provided by statewide conservation groups as well as federal and state employees. Sullivan (2008) points out, that the group first approached small issues on which they could easily agree, before dealing with more complex and controversial issues. Each of the partners of the Blackfoot Challenge had a chance to debate the issues they faced and workable strategies were developed. The key was that no single voice dominated and that all had an equal voice. State and federal agencies fully participated but had the same level of importance as other contributors. However, with the mining industry, a major player in the area is not getting involved with the work of the Blackfoot Challenge. The Blackfoot Challenge has invested more than 10 million dollars into various restoration projects throughout the Blackfoot Valley, many of them revitalizing secondary tributaries, controlling weeds, recovering wetlands, and repairing secondary tributaries. Sullivan (2008:131-133) quotes Paul Roos who said about the success of the Blackfoot Challenge: "We have succeeded here in the Blackfoot Valley merely because we all came to the table, put aside our differences, and sought common ground. Some of the strongest leadership for what has been accomplished in the valley has come from those whose lives are given to the agricultural industry, second- and third-generation families who I believe truly love the land, raise families on

it, and want as much as anyone else to see it returned to health. The key to the coalition that came here on the Blackfoot happened only because we all came to the conclusion that we were part of a problem. We all, even us in the trout fishing industry, were polluters, and if we were going to make good things happen on the Blackfoot we needed to start there.” And further: “What has made the Blackfoot Challenge a success over the years is simple. We have simply placed the emphasis on what we can do as opposed to what we cannot do. That elementary paradigm has kept negative energy to a minimum and helped us focus on achievable goals.”

In the beginning of the 1990s, the Blackfoot watershed contained a large number of threatened and endangered species such as grizzly bears, wolves, and bull trout. At this time the watershed had severe problems with dewatered streams, water quality, and invasive weeds. Additionally, the area faced development pressure. Greg Neudecker, a scientist from the U.S. Fish and Wildlife Service and Jim Stone, the owner of the Rolling Stone Ranch, were instrumental in the founding of the Blackfoot Challenge in 1993 (Weber, 2012). The name Blackfoot Challenge refers to the challenge that the mixed public and private landownership was anticipated to be for finding consensus (Burnett, 2013). The Blackfoot Challenge is the main driver improving collective governance and problem resolution in the Blackfoot watershed (Weber, 2012).

Since 1995, the Blackfoot Challenge has in collaboration with the USFWS established conservation easements on 90,000 acres, which is approximately 30 percent of the private property in the watershed (Weber, 2012).

The conservation approaches of the Blackfoot Challenge have been described to be highly successful and the approaches by the Blackfoot Challenge have influenced conservation

approaches throughout the United States. For instance, Sullivan (2008) said that the Blackfoot Challenge has developed new approaches to problem-solving and that the organization is a good example for working together. Sullivan (2008, 130-131) describes the Blackfoot Challenge to be “an association of national acclaim”. According to Bixler and Taylor (2012), the Blackfoot Challenge has received national recognition for their work in collaborative conservation. Bixler and Taylor (2012:237) state that the Blackfoot Challenge “is being asked by external donor and other institutions to participate in larger conservation initiatives”. The Blackfoot Challenge is being asked for support in the Crown of the Continent regions as well as in other watersheds where help is requested to set up collaborative environmental governance institutions (Bixler and Taylor, 2012), and the organization thus has influence on other conservation groups and projects.

Bommert (2010) discusses collaborative innovation and described the Blackfoot Challenge to be a prominent example of such. The author articulates that initially environmental groups and top-down planning by agencies, which was the traditional approach the government took to conservation were unsuccessful in the area. Local residents started a grassroots movement in which residents collaborated and state and federal natural resource agencies joined the movement. Bommert (2010) also states that by 2006 more than 600 partners had entered collaboration with the Blackfoot Challenge. The partners included landowners, conservation organizers, timber companies, private foundations and local, state, and federal agencies. This means that the number of players in the game has increased significantly. It also shows that relationships among the individual players also have increased which means that the nature of the game of conservation has become significantly more complex.

Conservation Work in the Swan Valley

The Swan Valley has a long history of timber harvesting. In 1906, Anaconda Company purchased a large stand of timber on the South end of Seeley Lake (Spritzer, 2012). The logs were transported over the Clearwater River to the Blackfoot River. In order to do so, three dams were built on the river to hold the logs back. When the first pool was filled with logs, the dam was dynamited so that the resulting flood would carry the logs to the next dam, which was then dynamited as well. At the beginning of the 20th century, the Somers Lumber Company floated millions of feet of logs over Swan Lake and down the Swan River to a mill located on Flathead Lake.

According to Seibert (2007), the Swan Valley was heavily dependent on timber until the 1980s, when the annual timber harvest declined by approximately 25%. Cestero and Belsky (in Kusel and Adler, 2003:149) state a “job-versus-environment debate” developed in the Swan Valley at the end of the 1980s. According to the authors, over 100,000 people in the U.S. had lost work in industry related to timber and wood products and effects were noticeable in the Swan Valley. An economic transition took place that led to “increased fear and anger among the valley residents connected to wood products” and at the same time “as evidence of ecological degradation was mounting, valley environmentalists grew increasingly concerned about the ecological and aesthetic impacts of logging in the Swan” (Cestero and Belsky, in Kusel and Adler, 2003:153). While those dependent on timber sales favored an increase in the permitted amount of annual cuts, environmentalists favored stronger environmental protection. The authors further refer to other groups in the valley that were concerned about the effects of clear-cuts and

degraded fisheries on the tourism industry and groups who opposed the government making decisions about the community.

During this time, two environmental organizations were founded: the Friends of the Wild Swan and the Swan View Coalition (Seibert, 2007). The Friends of the Wild Swan was a local environmental group working for the protection of the Swan Valley by challenging logging and road building on public lands (Cestero and Belsky, in Kusel and Adler, 2003).

In 1990, the Swan Citizens' Ad Hoc Committee was formed from meetings of a small group of valley citizens who were aiming to create "a broad community dialogue on the natural resource issues dividing the community" (Cestero and Belsky, in Kusel and Adler, 2003:154). The goal of the organization was that "The ad hoc founders wanted to integrate environmental protection with residents' ability to earn a living in the valley" (Cestero and Belsky, in Kusel and Adler, 2003:155). Membership in the organization is described to be open to everyone without requiring a specific time commitment. Rules required respectful behavior and reaching a consensus in order to advocate a position. In 1996, a sub-committee of the Swan Citizens' Ad Hoc Committee established the Swan Ecosystem Center in order to prevent a closing of the Condon Work Center, a USFS facility. "The connections built between Swan residents and land management decision makers are among the most importance relationships forested by the ad hoc's collaborative efforts" (Cestero and Belsky, in Kusel and Adler, 2003:159). Seibert (2007:3) refers to the Swan Ecosystem center as "an umbrella organization for community forestry activities in the upper Swan Valley".

Seibert (2007) points out that the Swan Ecosystem Center's sub-committees for education and ecological literacy can be seen as a stimulus for the development of Northwest Connections,

a non-profit educational organization. According to Seibert, Northwest Connections developed mainly from the visions of Melanie Parker, Andrea Stephens, and Tom Parker. The work of Northwest Connections is focused on community-based conservation and education. (Seibert, 2007)

In the mid-1990s, the Trust for Public Land helped adding an area of 2,542 acres surrounding Lindbergh Lake in the Swan Valley to the Flathead National Forest. This meant the protection of about two thirds of the shoreline of the lake (Lindbergh Lake, 2015).

Under the so-called Montana Legacy Project, the Trust for Public Land and The Nature Conservancy have collaborated with nonprofit partners, private funders, and local residents to protect 80,000 acres of timberland in the Swan Valley and a total of 310,000 acres in Western Montana. The Montana Legacy Project is one of the largest and most complicated conservation projects in the history of the U.S. and an “unprecedented partnership between private and public entities” (Montana Legacy, 2015). The Montana Legacy Project protects various forms of working landscapes, including forests, rivers, valleys, and mountains.

Prior to the beginning of the Montana Legacy Project, the land ownership in the Swan Valley could be described as a “checkerboard pattern-one square mule sections altering in private and public ownership” (Montana Legacy, 2015:). With a total of 72,000 acres, Plum Creek Timber was the main private landowner. When a large portion of these lands was to be developed, the Montana Legacy Project was established. Northwest Connections has according to their website initiated the Montana Legacy Project. The conservation of the area began in 1997, and the work with local citizens played an important role in the process. Northwest Connections advocated a large landscape approach in 2005. In 2007, the Nature Conservancy and the Trust

For Public Land bought the remaining land in the Swan Valley of 67,000 acres from the Plum Creek Timber Company. The Trust for Public Land further names the Swan Ecosystem Center as a partner of the Montana Legacy Project (Montana Legacy, 2015).

Interview Results

The following description of the conservation history in the Blackfoot and Swan Valleys results from the fourteen interviews. The description is organized into several key topics that were developed from the sub-nodes that were formed when analyzing the interviews in *NVivo*.

Blackfoot Challenge

The Blackfoot Challenge stood out as a key player in conservation in the Blackfoot Valley. The origin of the Blackfoot Challenge was in a time when the public in the area was having major arguments about conservation. Several key individuals brought trust to the process. Those people included Bill Potter, Hank Goetz, and Land Lindbergh. Becky Garland helped during the beginnings of what developed into the Blackfoot Challenge and named the organization.

The reason the Blackfoot Challenge came together was the threat of the federal government taking action on cleaning up the Blackfoot River. Local landowners were strongly opposed to the federal government coming in and acting. Therefore, locals tried to improve conditions of the river on their own and local people decided to get together. They found ways to incentivize landowners to use better practices instead of outright demanding changes.

In 1993, the Blackfoot Challenge was officially founded and Land Lindbergh became the first official chair. It became a 501C3 organization, which is a code in the Internal Revenue codes

for managing such an organization. At the time the Blackfoot Challenge was founded, Trout Unlimited, which was a true environmental group, was already working in the area but government entities could not always get involved with environmentalist groups. The Blackfoot Challenge on the other hand, was a watershed group, where everybody could participate and exchange ideas. It was open to all people, both government and private. The Blackfoot Challenge did everything outside of the issues Trout Unlimited worked with.

The first formal project the Blackfoot Challenge worked on was a cooperative river approach. In the project, Fish and Game took the responsibility for administration of the project. Six or eight people attended the first board meeting. All those who attended could see the potential of the organization although nothing had been achieved at that point.

The Blackfoot Challenge was strongly involved in the protection of Plum Creek Timber lands. The organization was involved with buying the land and being involved in negotiations in the years 2003 and 2004. The decision to buy the Plum Creek Timber lands was brought up by Bernie Hall and supported by the community. The Blackfoot Community Project formed a partnership with the Nature Conservancy. Between 80,000 and 90,000 acres of Plum Creek Timber land were acquired in the valley. Altogether, about 400,000 acres were sold to the Nature Conservancy. The Blackfoot Challenge played an instrumental role in communicating with the public and in the disposition of the lands that were purchased in the Blackfoot Valley by the Nature Conservancy.

The Blackfoot Community Conservation area is managed and directed under the Blackfoot Challenge. Decisions are made by people who are on the committee, most of them being private citizens living in the area. In the Blackfoot Community Project long-time ranchers

and residents came together with new part-time residents and that the working together of the different groups contributed a lot to the project.

The group Partners of Conservation was built of the template of the Blackfoot Challenge and participated in President Bush's Cooperative Conservation conference in St. Louis about the Blackfoot. The group was received a grant called Innovations in American Government of \$100,000. Their main innovation was transferability of their approach. A national meeting was organized in Seeley Lake in 2008 that brought together over 70 landowners from different parts of the country, including landowners from Colorado, Wyoming, and California. The group of participants was diverse and included fishermen, 'timber folks', ranchers, and bankers. The goal of the meeting was to bring the stories of the different landowners together and to hear what each of them do on their land and showed that the different landowners have a lot in common.

The Blackfoot Challenge was described as an umbrella group that kept the seven communities in the Blackfoot informed. It is a group to which everyone could go and exchange ideas. Interviewees voiced strongly positive experiences in working with the Blackfoot Challenge. A factor in the effectiveness of the Blackfoot Challenge was that a number of people shared interest in protecting and preserving a way of live and the natural resources that sustain that way of life in the Blackfoot Valley. Another important factor was to find a common ground and work collectively with people from different backgrounds and with different ideologies or political views.

Northwest Connections

Northwest Connections was established in 1997 by Tom and Melanie Parker with help by Andrea Stephens. The founding of Northwest Connections was the outcome of a lot of local

discussion in the community about implementing a good, effective, and holistic management on public lands, in particular in areas with so-called checkerboard ownership patterns. Another issue at the time was that there was no good functional mechanism to engage the interested public in decision-making about public lands. In the late 1990s, major things were happening on the landscape and some locals were not feeling sufficiently empowered in having an influence on it. The co-founders Tom and Melanie Parker got involved with local people who were working in conservation and natural resource management. At the same time they started bringing in college-age students to educate them about what was happening in the area and introducing them to a more rural culture. Tom Parker's background was that of a local outfitter and hunting guide with a deep knowledge about the landscape, while Melanie Parker came to the area as a graduate student and saw the opportunity to create a field based education program to bring college students to the area and allow them to gain direct hands on experience. Students are learning relevant field skills about how to interpret forestry, wildlife, and watershed issues. They also learn from local people by interacting with them and understanding the rural perspective of conservation and land management.

Tom and Melanie Parker had the goal to create an organization that could assist primarily in two ways: developing long term monitoring projects that would document changes to habitat and species and feed that information into agency decision making processes and use these projects as the foundation of their field courses. Students were a part of Northwest Connections' business model. They would pay for the courses they are taking and this way support the non-profit and the conservation work in the area.

Northwest Connections' first field course named 'Winter Field Studies' was taking place during the January term and was targeted towards University of Montana students. It was designed to teach students to travel and camp outdoors in the winter and to learn about the ecology in the winter. Another project Northwest Connections started, was tracking forest carnivores like lynx, fisher, mutton, and wolverine in the winter through snowshoeing. Several years later Northwest Connections introduced its 'Landscape and Livelihood Field Semester' for which they are hosting students for a whole semester. Students earn sixteen credits of classes while living and studying in the Swan and Blackfoot and Mission Valley. The field semester is targeted towards students from all over the United States. About four years ago Northwest Connection started the 'Wildlife in the West Field Semester' in the Spring Semester that focusses on endangered species and how they are managed in a working landscape. Northwest Connections takes twelve students per field semester. Additionally, the organization offers some shorter programs and they host institutions from other parts of the country. A reason for the development of the outdoor education program was that students, even with multiple degrees, lacked field experience and hand-on experience with regard to topics like tree, plant, and wildlife sign identification. Because backcountry knowledge is important for a lot of work, an opportunity was seen to create a program where students would have the opportunity to access and develop course work and at the same time learn about field activities.

In the late 1980s and early 1990s Northwest Connections worked extensively in the field on a number of wildlife research projects. The organization focused heavily on grizzly bears in the early stages of the wildlife monitoring program because there was a lot of dissention and disagreement in the community about if and how many grizzly bears were in the area. Northwest Connections together with a graduate student at the University of Montana developed a system to

monitor bears in a systematic way. The organization was the only non-government agency contractor that led a lot of the fieldwork from the Bob Marshall to the west of the study area.

Northwest Connections was also strongly involved in the protection of the Plum Creek Timber lands through inviting the National Land Trust and the Nature Conservancy and working on the Trust for Public Land. It used to be a concern to promote the Swan Valley due to the potential real estate lands in the valley. However, because most of the land was now publically owned, recreation and ecotourism are being promoted. An example for a recreation program is the Swan Legacy Trails Project.

When the U.S. economy imploded in 2007 a lot of concern towards conservation came up because people were concerned about jobs and economic benefits. However, together with other agencies like the Blackfoot Challenge, the Forest Service, and the Wilderness Society, Northwest Connections was able to come up with a ten year plan to bring federal money into the restoration of lands and newly initiating and creating jobs or maintaining jobs.

When the interviews were conducted, the organization had an interim executive director, Maria Mantas. . The organization had a conservation program director, education coordinators, marketing and communications director, and some program associates that worked for them as well as some interns. Major decisions typically go from staff to board or just the board while other decisions are being made through collaboration between the executive director and various other leadership positions. Those working at Northwest Connections are described to be very self-directed and people know what needs to get done and find a way to get it done without a lot of oversight and micromanaging. When the interviews were conducted, Northwest Connections

was in the process of merging with the Swan Ecosystem Center. Since January 2016, the merged organization operates under the name Swan Valley Connections.

Swan Ecosystem Center

The Swan Ecosystem Center as a community based conservation non-profit organization that is working closely with the community. Their mission is to try to maintain the valley's values through good land stewardship and educating local residents and landowners on best practices for stewardship on their lands. *Interviewee M* said about the organization's work:

“We are trying to keep it a place that we love, a place that we cherish with regard to its natural resource values”.

In the 1990s the climate in the area was polarized and there was a strong notion of loggers versus environmentalists. Several people in the area thought that it would be beneficial for the community if people learned to talk to each other in a more civil way. Bud Moore, Alan Taylor, Rod Ash, and Neil Meyer belonged to a group of people that got together and founded the effort Swan Citizens Ad Hoc Committee. It was assumed to be only a temporary effort, which is why the name included the term *ad hoc*. The committee worked productively on projects through the facilitation process and through increased civil dialogue. The Swan Citizens Ad Hoc Committee had first successes with some small projects that involved people with a diverse background.

The group decided to work on their own little logging projects north of the Swan, where the Swan Ecosystem Center is located now, in the Condon Forest Service Work Station area. In 1996, the group looked at a 120 acres site. The group agreed over several meetings and field trips and to do some thinning around some big old Ponderosa Pine trees north of the Condon Work

Center. In 1995 or 1996 the Forest Service announced their plans to close the Condon Work Center. The community came together and said that they wanted the station to remain open and that they did not want the presence of the Forest Service to leave. The Swan Citizens Ad Hoc Committee decided to enter a partnership with the Forest Service to keep the building open and to do projects involving collaboration or that are related to forestry or wildlife. In order to raise the money to enter a partnership with the Forest Service, the group founded a nonprofit organization. At the time the group called themselves the Swan Valley Ecosystem Management and Learning Center, which is also how they filed their incorporation papers. Because the name was too long they shortened it a few months later to Swan Ecosystem Center. The Swan Ecosystem Center applied to the state of Montana for their coat of incorporation in October 1996. They began to file for their nonprofit status for the federal government, which they received on their IRS determination letter on April 1, 1997. The Swan Ecosystem Center is a 501C nonprofit entity with the federal government.

Anne Dahl was the director of the Swan Ecosystem Center from its beginning until December 2013 when Maria Mantas became the director. Anne Dahl continued working for the Swan Ecosystem Center until June 2014 as a supporting member of the staff to ensure a good transition. The job of the executive director of the Swan Ecosystem Center is to run the entire organization, ensure that it is functional, that they are sufficiently funded, and that they accomplish their missions and strategic plan. Neil Meyer served as the long-time chairman of the Swan Ecosystem Center.

A major part of the mission of the Swan Ecosystem Center is partnership. The organization has done all of its work with other entities, including Montana Fish, Wildlife, and

Parks, Audubon, Northwest Connections, the U.S. Fish and Wildlife Service, the Montana Department of Environmental Quality, the Forest Service, and Montana DNRC. Particularly the close collaboration with the U.S. Forest Service is of major importance as the Forest Service is the main landowner in the valley. The Swan Ecosystem Center is trying to build a bridge between the U.S. Forest Service and the local community.

The Swan Ecosystem Center is involved in a number of different projects but their main focus is working with private landowners and the public to help them understand and appreciate the values of the Swan Valley and to maintain these values through stewardship. A major focus of the Swan Ecosystem Center is education, specifically education with regard to conservation. The organization did projects with local elementary and high schools. The Swan Ecosystem Center got involved in field trips with the Forest Service with the goal of getting people better informed about logging and connecting them with the Forest Service. Another project is that the organization has employed contractors do trail steward work in the Mission Mountains and in the Swan Range. Their work consists of opening and clearing trails, cleaning up campsites, and educating the public on recreation in wilderness areas. In this project the Swan Ecosystem Center's partners included the Montana Department of Environmental Quality, the Forest Service, and Montana DNRC. In a water quality project in the Swan Valley, the Swan Ecosystem Center is aiming to reduce sediments running off the forest roads into the Swan River or into Swan Lake. In 2004 or 2005 the Swan Ecosystem Center received grants for this project. The Swan Valley Bear Resources project, in which the Swan Ecosystem Center is working with Northwest Connections and Montana Fish, Wildlife and Parks, aims to help people live with wildlife without causing harm to humans or wildlife.

The Swan Ecosystem Center was involved in the protection of the Plum Creek Timber lands. Members of the organization went to Washington, D.C. through the Swan Ecosystem Center to testify to Congress for the acquisition of the Plum Creek Timber lands.

The Swan Ecosystem Center was described to have become the centralized service and clearinghouse in the Swan Valley, which the interviewee sees as the organizations main accomplishment.

When the interviews were conducted, the Swan Ecosystem Center was in the process of merging with Northwest Connections. Since January 2016 the merged organizations operate under the name Swan Valley Connections.

Merging of the Swan Ecosystem Center and Northwest Connections

The Swan Ecosystem and Northwest Connections merged on January 1, 2016 under the name Swan Valley Connections (News, 2016).

Northwest Connections and the Swan Ecosystem Center have talked for years about merging because had collaborated on almost all of their projects. A few years ago the Swan Ecosystem Center and Northwest Connections got together and they hired a facilitator to help them decide if the two organizations should merge. At the end of the process the organizations decided not to merge because it was not the right timing. The reason they decided against merging was that both organizations were established and had directors. Melanie Parker was the director of Northwest Connections and was described to be a very powerful leader. However, when she had moved away in 2014 and the original director of the Swan Ecosystem Center retired, the organizations again considered merging. The organizations went through a two

months process of evaluating their missions, goals and visions in detail to find out if the two organizations were compatible and came to the decision to merge. In 2015, they were been working towards merging the two organizations. The organizations shared the same basic fundamental principles but were divided on tasks with Northwest Connections focusing on college-age education and the Swan Ecosystem Center focusing on younger children and recreational learning for local people. According to *Interviewee K*:

“[...] there were a number of tasks that we divided up and got the job done. But really we were functioning almost as one organization. Just different arms, you know. So it makes sense to put them together.”

The two organizations' idea of conservation was the same and education was a major part of the work of both organizations. One reason for the merging is that the valley is relatively small for having two nonprofit conservation organizations. The merging of the organizations is expected to strengthen both organizations and they are expected to gain the elements needed from each other. Northwest Connections has strong education programs and strong field expertise while the Swan Ecosystem Center has strong expertise in working and collaborating with private landowners on restoration. The merging of the two organizations is expected to increase efficiency and lead to a stronger and bigger organization.

In the first phase of merging the organizations, Northwest Connections and the Swan Ecosystem Center are committed to doing the same programs as before. In the future the programs might be changed if they find better and more efficient ways of doing things. The main change will be the growing of the organizations. The organizations are expected to look at their

combined missions and mission goals and prioritize what is needed and partly on capacity of who is available to deal with these projects, partly based on availability of funding.

Trout Unlimited

Trout Unlimited is a national organization that has small chapters in each state and in each area. The Big Blackfoot Chapter of Trout Unlimited was started in the 1987 because people noticed a decline of the fisheries in the Upper Blackfoot. At the time a drought had occurred and in the 1970s the Mike Horse Mine and an old dam leaked heavy metals including cadmium and iron into a tributary to the Blackfoot River. Additionally dewatering of the river was due to water being used for the timber industry, ranchers, and other residents. The high water usage reduced the quality and quantity of good water in the stream. Trout Unlimited raised awareness about how to take care of the waters and was a part of on ground restoration. Fish, Wildlife, and Parks was not doing any inventory work at the time the Big Blackfoot Chapter of Trout Unlimited was founded. *Interviewee I* said:

“Basically the department had sent all of their personal to other drainages. The Blackfoot had essentially been written off”.

Trout Unlimited is working with partners on projects benefitting native trout across the watershed. The organization is involved in stream restoration, riparian re-vegetation, and water conservation projects. Trout Unlimited is also working on grazing management and fish passage work. Their projects are being carried out on both public and private lands. The fish species they are working with are Western Cutthroat and Bull Trout, which are both native trout species. The organization cannot just focus on fish but that they need to create a program that works for

landowners. The State of Montana adopted Trout Unlimited's Wild Trout policy mentioning that hatchery fish would no longer be brought into the river and that it would be a wild trout fishery.

Trout Unlimited has recognized that the majority of the work needs to be done on the tributaries, rather than on the river itself. The tributaries are the areas where fish reproduction is happening. Trout Unlimited has developed a prioritization matrix that allows them to identify the tributaries that are most important to native trout. An example for a project Trout Unlimited was working on is Cottonwood Creek, a tributary to the Blackfoot River west of Ovando. The stream flows through public and private land. The Forest Service works on the public land and Trout Unlimited on private land. Overall, Trout Unlimited spent over 9 million dollars working on the tributaries. This work was what made the Blackfoot River healthy again and made it more productive.

Wilderness Areas

When the Wilderness Act was passed in 1964 the Bob Marshall Wilderness was one of the first areas to be protected. The designation of the Bob Marshall Wilderness meant the first permanent protection given to any lands in the Blackfoot and Swan Valleys.

Cecil Garland was an individual from the study area who was strongly involved in the designation of wilderness lands. Garland helped to create the Bob Marshall Wilderness and was described to be strongly committed for wilderness areas. When the bill that designated the Bob Marshall Wilderness was passed, Garland volunteered to mark the boundaries of the wilderness area. Lincoln was based strongly on resources like timber and mining, which made it difficult to promote conservation in the area because people felt like conservation would affect their livelihoods. *Interviewee J* described the situation with the following words:

“And so to protect the important parts of the land, and keep it intact, and keep the, you know, fiber where it is supposed to be, is not always popular because it’s people’s livelihoods.”

When what is now the Scapegoat Wilderness was to be developed, Garland started calling people to prevent this development. Garland discovered the plan by the Forest Service to build a road network and to develop recreation facilities in the headwaters of the Blackfoot River. He became concerned and advocated for the protection of the area, which he achieved in 1972 with the designation of the area as the Scapegoat Wilderness. The designation of the Scapegoat Wilderness was seen as highly significant because it was the first time that an area was designated wilderness because of citizens proposing it. Previously, wilderness areas had always been proposed through the Forest Service.

In 1976 the National Forest Management Act passed Congress, which says that the Forest Service had to develop management plans for each forest. By 1985 or 1986 all of Montana’s forests had completed these forest plans. The plans included the Forest Service asking for recommendations for areas to be designated wilderness by an act of Congress. The Lolo, Flathead, and Helena National Forest all recommended portions of their landscapes to be designated as wilderness. The Lolo National Forests recommended that parts of their forests should be added to the Bob Marshall Wilderness. The mountains above Montour Creek north of Ovando were also recommended for wilderness designation. For many years attempts have been made to designate these areas as additions to the Bob Marshall Wilderness by Congress. In 1988 that would have designated about 2 million acres of wilderness throughout Montana was passed

by both houses of Congress and went to the president. However President Reagan did not sign the bill due to political reasons. *Interviewee A* described the situation:

“That was a pocket veto, so it didn’t, wasn’t really like... The President can either veto something outright or he can just let it sit and not touch it and that’s what he did. He just let it sit there. And so it died away. It didn’t... Congress had passed the bill, it should have become law but it never became law.”

The failure to decline these lands as wilderness left the people in Montana devastated because of the time and money they had invested in adding the lands to the wilderness areas. In 1994, Pat Williams, a congressman, introduced another bill that would have permanently protected the lands that had previously been decided to become wilderness. Following this, there had been little progress to permanently protect any of the federal public lands in the Blackfoot or Swan Valley.

In 2005, the Montana Wilderness Association and the Seeley Lake Drift Riders Snow Mobile Club agreed on an area in which the Montana Wilderness Association could support snowmobiling, which was an area snowmobilers had used for a long time but that had been closed to them by the Lolo National Forest, and on one area, the West Fork of the Clearwater River, for which the snowmobilers in exchange supported efforts to add it to the Mission Mountains Wilderness. This agreement was seen as a major breakthrough. The agreement was described by *Interviewee A* to have:

“[...] kind of paved the way for a new relationship between conservationists, recreationists, and the timber industry”.

The Blackfoot Challenge helped facilitate initial meetings and a large variety of stakeholders came together. Pyramid Lumber, a timber harvest company from Seeley Lake, was another main actor. Since 2005, major transformations have taken place in the perceptions of local communities of conservation. Many people in the communities have realized that there is sufficient land for both wilderness and sustainable timber harvest. People used to despise organizations promoting wilderness. In 2014, for the 50th anniversary of the Wilderness Act, in Seeley Lake alone over 2,500 people celebrated wilderness, which shows how much the people's view of wilderness has changed.

Montana Wilderness Association

The Montana Wilderness Society was founded in 1958. The organization is a state-based, grass roots wilderness advocacy organization. The term grass roots means that the organization relies on its members and volunteers for its funding and also for a lot of its work. From its founding in 1958 until the mid-1980s the Wilderness Society was a completely volunteer run organization. In the mid-1980s the organization hired its first staff member. Now they have between twenty and twenty-five full time staff members as well as a local board of directors. The Montana Wilderness Society works on efforts to protect wildlife habitat and places for quiet recreation. The association has a long history of working in the Blackfoot and Swan Valleys and they were involved in the passage of the Wilderness Act in 1964. In 1964 the Montana Wilderness Association was actively involved in protecting some of the headwaters of the rivers in the area. Together with other organizations like the Wilderness Society supported the effort to designate the Scapegoat as wilderness.

Blackfoot Clearwater Stewardship Project

The group called the Blackfoot Clearwater Working Group came to an agreement in 2008 and then became known as the Blackfoot Clearwater Stewardship Project. Their program consists of three parts: Wilderness, recreation, and restoration. The main objective of the wilderness aspect of the project is to protect the land in the Lolo National Forest that has been recommended to being added to the Bob Marshall Wilderness. The recreation component has the main objective to help Seeley Lake and Ovando become higher quality and better known destinations for people who want to go recreate. The program aims at drawing both people who are going into the wilderness areas as well as people who snow mobile or ride mountain bikes into the area. They are creating special snow mobile areas, in a conservation area north of Ovando. The area will be managed like wilderness but will allow access to snowmobiles in the winter. The program is encouraging studies and development to connect communities and connect people with the landscape. One of their projects is a study of the trail system between the communities in the vicinity. The third component is restoration, which helps to facilitate projects that would sustainable timber harvest from the Seeley Lake Ranger District area with the goal of improving wildlife habitat. Money from timber harvests is according to the interviewee to be kept local and is to be invested into restoration projects for which otherwise no sufficient funds would be available.

The proposal of the Blackfoot Clearwater Stewardship Program was wrapped into a larger bill, the Forest Jobs Recreation Act, which was sponsored by Senator Tester. The bill had been introduced in three different sessions of Congress and has come close to passing. The restoration component of the project was formalized as the South West Crown Collaborative with the help of

Senator Tester. The Blackfoot Clearwater Stewardship Project has the support of a wide range of organizations. The Blackfoot Clearwater Stewardship Program has so far only received support from Democrats, but not from Republicans in Montana, however, many Republican citizens do support the bill.

Conservation Easements

Lubrecht Forest participated in the river corridor project. As a part of the river corridor project, the Nature Conservancy talked to Land Lindbergh about the concept of conservation easements, for which at that time no legislation existed in Montana. Lindbergh was asked to put a conservation easement on some of his river frontage ground on the Blackfoot on his property, which was adjacent to Lubrecht Forest and he agreed. A lot of the ranching community has changed their views on conservation easements and many now see conservation easements as a planning or as a tax planning tool. Talks about conservation easements started in the late 1960s. At this time there were no conservation language or laws in Montana and people went to the legislature twice to establish a conservation language. The first attempt was unsuccessful. However, Ty Robinson, who represented the railroads as a lobbyist and shut down the initial bill, approached the proponents for conservation and told them he would help them get the bill through the next time. Two attorneys worked on the case, Bob Knight and Jim Goetz, and wrote the bill. The second time, in the mid-1970s, the legislature was passed. Once it had been passed, conservation easements were put onto private lands on the Blackfoot. The first conservation easement was on the Blackfoot River upstream from Lubrecht in the Ovando area and was issued in 1975 or 1976 with the Nature Conservancy. Now, over a hundred thousand acres of land in the

Blackfoot River have conservation easements. The main objective was to protect the river. At least six groups including Five Valleys, and Fish, Wildlife and Parks, started programs.

Fire Management

Significant changes in the way fire management is being approached have been observed. In the 1960s the goal was to put out all fires quickly. Suppressors of the fires had done an excellent job, which had led to a lot of fuel built-up of which consequences are still visible today. At the time, there were fewer concerns about safety than there are now. *Interviewee B* made the statement that now they “[...] kind of wanna manage the fire”. Fires are not being put out anymore. Prescribed fires were used in the past and are still being used today. This is closer to the natural occurrence of fire in the study area, which developed under a natural fire regime. Fires are normal in the Western U.S., but because of the European background of the people, fire was seen as a bad thing as it was commonly seen in Europe. Because of that the Forest Service developed a strong emphasis towards fire oppression. The Forest Service was described as the largest fire management organization in the world because the detection or prevention, protection, suppression and management of fire are a large part of its work. The Forest Service went too far with controlling fires and scientists started to realize that not all fires should be suppressed and that the system needs fires because they lead to vegetation patterns and are a part of the cycle of the forest. Now the Forest Service sets fires because they want to control the fire in their own terms and fires are often employed in vegetation treatments. Oftentimes thinning precedes the broadcast burn. The Forest Service is trying to approximate natural processes. Early experimentation occurred in the 1970s, while in the 1980s the use of fire became more common.

During this time fires were increasingly allowed to let burn in the wilderness areas, mainly in inaccessible areas where it could burn for a long time without reaching structures.

In 1988, an especially big fire season occurred. This included fires in the Bob Marshall Wilderness. Many of the fires were prescribed fires that were allowed to let burn. Now the Forest Service is more careful when they are letting fires burn. In extreme droughts for example, they may not allow fires to burn. The fire suppression over many years has led to a significant accumulation of fuels. Additionally the overall climate is getting warmer and drier. Because of these conditions fires are becoming more severe and harder and more expansive to fight. This also leads to trees becoming more vulnerable to certain insects and insects and disease problems are starting to explode, and insects are no longer killed in the winter months, leading to a high mortality.

More people are moving into the areas next to public lands, which requires a larger emphasis on protecting these lands they move onto. The Forest Service used to spend between 12 and 18 percent of its budget on fire, while it currently spends over 50 percent of the federal budget on fire. A century was spent trying to do what was believed to be conservation although as understanding of fire systems advanced we now understand that what has been done in the past was actually setting us back in conservation. A situation was created that was difficult to undo due to the large accumulation of fuels and interruption of the natural fire cycles.

Bud Moore was one of the architects of returning fire to the repertoire or management of tools of the National Forest in the 1960s or early 1970s. Fire was used as a management tool to restore ecosystem processes in the natural landscape. However, not much happened with regard to fire until the big fires in the Bob Marshall in the mid-1980s. An interviewee said he thinks it

was in 1987 when they left the Cherokee Fire burn and that that was the first big wildfire s/he remembers that was allowed to burn in a natural fashion. Some ecosystem burning was done on non-wilderness National Forests in the West.

Lubrecht Forest

Lubrecht Forest had its origin as a research site for the University of Montana - School of Forestry in the 1930s. In 1937, Dean Smalley at the University of Montana wanted to give the School of Forestry land for the students to study or the professors to do research on. Dean Smalley talked to Lubrecht, who was the logging manager of the Anaconda Forest projects, and because the company had just extensively logged the land, it was given to the university. A forest and conservation experiment station was set up at Lubrecht, which included a forest library, a nursery program, among other things. Proponents of the experimental forest argued it would be appropriate for the University of Montana and the School of Forestry to have a research conservation station and the legislation was passed. The Dean of the School of Forestry was also the director of the experiment station. The legislation included that the experiment station could receive gifts of land and field stations. The Anaconda Company donated over 20,000 acres to the School of Forestry in 1937. In 1939, the Northern Pacific Railway Company donated additional sections. As the Second World War started, the development in Lubrecht came to a standstill. In the late 1950s, it was decided to start the residential spring camp in Lubrecht. Boxcars that had previously been used by the Anaconda Company were moved to Lubrecht. Then smaller cabins were built with student help. In the 1970s or 1980s the Forestry Center was built, which includes meeting rooms. The Lodge Facility was built about fifteen years ago, which would be 2000.

Lubrecht Forest consists of 21,000 acres that are owned by the University of Montana and another 6,000 to 7,000 acres that were at the time under state forestry management. This ownership still belongs to the state, but Lubrecht manages the land.

The primary purpose of Lubrecht Forest was to provide a site for natural resource based conservation research. Timber research, wildlife research, and fire related research including burning projects, were conducted in the forest. Lubrecht was to provide a safe and secure research site as long as needed. Additionally the forest sold timber, had cattle grazing in the forest, and recreational opportunities, including hunting.

Dean Bolle of the School of Forestry had a broader vision of conservation. His vision included integrating Lubrecht Forest to become a part of the Blackfoot Community. Sophomore students in the School of Forestry had the option to attend a residential spring camp in Lubrecht Forest where they did field related forestry work. The camp took about nine weeks. In the early 1970s, Lubrecht Forest got involved with first conservation projects. Representatives of the forest got together with landowners, the Missoula County Department of Natural Resources, and Fish, Wildlife and Parks and came up with a recreational management plan for the Blackfoot River. A 30 mile-long stretch of the Blackfoot River, which was by 85 percent privately owned, was taken and a cooperative plan was worked out. The plan allowed the public access to the river, mainly on private land. Public use was managed by the government through Fish, Wildlife and Parks. Overnight camping areas were provided on land that at the time belonged to Champion Timber. Further, walk-in hunting areas were established. Lubrecht Forest also participated in the river corridor project.

Plum Creek Timber

The history of the Plum Creek lands goes back to the 19th century. In 1864, President Abraham Lincoln signed the 'Railroad Land Grant', which gave the railroad company Northern Pacific access to build a railroad across the Western United States, which came through Montana. When Northern Pacific merged with another railroad company, the land came into ownership of Burlington Northern, which separated the railroad from the land so that the land was then owned by Burlington Resources. Burlington Resources later turned into Plum Creek. The Anaconda Copper Company used to own about a third of the land in the Blackfoot Valley. They sold the land in about 1970 to Champion Timber Lands, which managed the land until 1994 when they sold it to the Plum Creek Timber. In 1996 a land exchange of about 12,000 acres was conducted between the BLM and Plum Creek Timber.

This history has led to the so-called checkerboard pattern of corporate timber and public Forest Service lands in the Swan Valley. Checkerboard pattern means that a square mile of Plum Creek Timber land bordered with a square mile of Forest Service land. Private land in the area comes from the homestead era and is typically smaller than a square mile. In land ownership in the Western United States, the bottom grounds along the river are traditionally privately owned, while further up one gets a pattern of corporate timberlands, state land, and private land. Higher up lands are commonly in federal land ownership. These federal lands are mostly owned by the Forest Service as well as by the Bureau of Land Management. Most of the Plum Creek Timber lands came from the railroad companies. Private timber companies allowed people to come in and hunt on their land. People would come in on a public access road and get into the high country and as they headed back downhill they would oftentimes enter private lands, which led to the

situation that more and more people installed fences. *Interviewee N* described the checkerboard pattern of the land:

“[...] didn’t make much sense, it seemed incompatible with the realities of the land. And the reality being then... our landscape position and unique attributes and values of this rich, diverse low-elevation habitat is unique in the Northern Rockies.”

Plum Creek Timber morphed into a real estate investment trust (REIT). The company lacked an economic basis and the REIT could sell land without the jeopardy of capital gains, which led to the land conversion from timberland to development land. The development of the Plum Creek Timber Lands would fragment the habitat, for a large number of species, including terrestrial mammals and aquatic species, but also for public access for people. In the 1980s or early 1990s, Plum Creek Timber changed their land management and started to sell off land for real estate development. Plum Creek Timber identified lands in which real estate was more economic than timber sales. The lands had before been treated like public lands and the community became concerned they would no longer be able to use the lands for recreation, that the development would negatively affect grizzly bears, and that fighting fires would become more dangerous and expansive. The shift of Plum Creek Timber to real estate was what started the Montana Legacy Project. *Interviewee O* said:

“Cause a big corporation they still like money, so they do not make it by cutting trees, they make it by selling land.”

In 1997 or 1998, the Forest Service acquired lands that Plum Creek was selling around Lindbergh Lake to prevent development. The sale of the lands surrounding Lindbergh Lake was

completed in 1999. However, Plum Creek Timber soon announced that it would sell more land. The Blackfoot Challenge started getting involved around that time. People were concerned that if the land would be sold to out of state buyers, public access would be restricted. The land had previously been treated like public land. Wildlife travel corridors and habitat go from the low country to the high country and wildlife corridors are not compatible with residential development. The sale of private land put pressure on long-time ranchers and drove prices, including land prices, up. When land was purchased at the mouth of the Elk Creek in 1996, the land prices had risen significantly. Northwest Connections was part of a group of citizens and non-profits that organized the saving of approximately 2,500 acres of land around Lindbergh Lake in 1998. Plum Creek came the following year, thus 1999. Plum Creek announced it was planning on developing more acres and they made plans for that. In 2000, Plum Creek announced to liquidate a quarter of their holdings within the next five years. Bernie Hall suggested buying the entire land owned by Plum Creek. After this proposition had been made, an outreach program was started in which a representatives talked to the communities about the plans to acquire the Plum Creek Lands, asked them if they supported the plan, and how they would like to see the land disposed. The majority showed support. The representatives went back to the people and told them what they had previously heard from them to ensure the information was correct. They also asked them if they were interested in purchasing any of the Plum Creek parcels if the deal was made. The Trust of Public Land started to work with the Forest Service to purchase these lands from Plum Creek Timber. Eventually, every parcel of Plum Creek land in the Swan Valley had been purchased and been donated or sold to the federal government or state agencies to ensure it being conserved. They invited the National Land Trust and the Nature Conservancy and several other landtrusts to think through the possibilities, which then developed into the Montana

Legacy Project. The negotiations about the Plum Creek Lands took about one year, from 2003 to 2004. The deal was signed in 2004. In about 2010 or 2011 all of the Plum Creek Lands in the Swan Valley had been transferred to the Forest Service with the exception of several remaining sections. By 2015, all of these sections had been transferred except for one half of a section. The lands were bought in a three-stage process over a three-year time period.

The Blackfoot Community Project the Blackfoot Challenge and the Nature Conservancy partnered up and got between 80,000 and 90,000 acres of Plum Creek Land in the Blackfoot Valley. The project later went to the Montana Legacy Project that in total contained between 300,000 and 350,000 acres of land. About 60,000 of the acquired lands were in the Swan Valley. With the acquisition of the Plum Creek lands the checkerboard pattern in the land ownership was erased. The land was transferred to the Forest Service and the state. The Nature Conservancy did not want to manage the lands and that the Forest Service, the BLM, and the U.S. Fish and Wildlife Service were able to acquire the lands. The overall land purchase from Plum Creek Timber was said to be about \$350 million. Senator Max Baucus was said to have helped make funds available for the project. Funds available under the Land and Water Conservation Fund (LWCF) were also used. The state used some sources of federal money and that some smaller parcels were purchased by the censa. Additionally, Land Trust Agency, called the Trust for Public Land, raised funds.

Several organizations had been strongly involved in the protection of the Plum Creek timberlands. *Interviewee N* pointed out several of these players in the interview:

“And so, we as a community prioritized taking some level of role and responsibility in directing the outcomes of the land conversion. And it became a lot of the work of Swan

Ecosystem Center and our organization [Northwest Connections], some of the land trust, other conservation organizations, and, as you know, there was a parallel effort in the Blackfoot through the Blackfoot Challenge [...].”

Discussion

Specifically the Blackfoot Challenge, Northwest Connections, and the Swan Ecosystem Center stood out as particularly important conservation agencies in the study area. Trout Unlimited as well as the Nature Conservancy were additionally found to have had a major influence on the history of conservation in the study area. It stood out that most of the major conservation agencies in the study area were founded at approximately the same time, in the mid-1990s: The Blackfoot Challenge in 1993, the Swan Ecosystem Center in 1996, and Northwest Connections in 1997, while the Big Blackfoot Chapter of Trout Unlimited was started about ten years earlier in 1987. It further stood out that in the three main conservation organizations, long-term residents were involved in the founding of the organizations and a strong interaction with locals was a major part of the program.

In several aspects, the history of conservation in the study area can be seen as a local reflection of the overall development of conservation in the United States. During the time of the frontier ethic, increasing parts of the study area were being accessed through the railroads and homesteads were developed. Chiras and Regenold (2005) refer to the 1960s as the time during which important progresses in conservation were made. During this time, first talks about conservation easements started in the study area. In 1964, the Wilderness Act was passed and the Bob Marshall Wilderness was among the first protected areas. In the 1960s avocation for the designation of the Scapegoat as wilderness came up. The 1970s also played an important role in

the history of conservation in the study area. This decade is referred to as the “decade of the environment” in Chiras and Regenold (2005:19). In 1974 the Scapegoat area became wilderness (Graetz and Graetz, 2004), however, during the 1970s, spills of heavy metals into the Blackfoot River also occurred and locals developed an increasing concern about the river (Sullivan, 2008). The 1980s and 1990s were described as a time of setback in the environmental movement in the United States but eventually also as a time of progress (Chiras and Regenold, 2005). In the study area, the late 1980s and early 1990s were the time during which strong debates between those favoring environmental protection and those favoring stronger economic development were held and environmental degradation became visible, for instance in the decline of fisheries in the Blackfoot River. Several important conservation organizations were founded in the study area in the late 1980s and 1990s: the Big Blackfoot Chapter of Trout Unlimited (1987), the Blackfoot Challenge (1993), the Swan Ecosystem Center (1996), and Northwest Connections (1997).

Motivations for individuals to get involved in conservation work that were revealed by the interviews included keeping the area the way it was, staying in charge and working on conservation themselves rather than have people from the outside come in to work on it, a lack of communication and interaction at the time, and the noticing on environmental degradation, specifically in the Blackfoot River. Overall the motivations within the different conservation organizations were similar. Because it stood out that in the mid-1990s the study area was facing some environmental problems, it can be assumed that all of the major organizations were to some degree a reaction to these issues, which explains the founding of the organizations around the same time.

In the interviews, the participants were asked mainly questions about their involvement in conservation, the agencies they have worked with, and their field of expertise. Questions were specifically targeted towards the individual interviewees based on prior research. The reason this approach was chosen was to be able to collect in-depth information about each of the interviewees' backgrounds in order to be able to gain a holistic picture of the overall history of conservation in the study area. However, due to this adjustment of the questions, there are only relatively few responses that can be directly compared. The responses by the interviewees further generally agreed with what had been found in the literature, although interviewees pointed out some details that had not been found in the literature and vice versa.

While Paul Roos was listed as a major player in the conservation process of the Blackfoot River by Sullivan (2008), the interview analysis emphasized specifically Land Lindberg, Hank Goetz, Bill Potter, Tim Love, and Cecil and Becky Garland to be key players in the conservation movement in the Blackfoot Valley. Greg Neudecker and Jim Stone stood out to have played an important role in the conservation of the Blackfoot from both the literature and the interviews. In the Swan Valley, Melanie Parker, Tom Parker, Bud Moore, Alan Taylor, Rod Ash, and Neil Meyer stood out as influential citizens through the analysis of the interviews.

The way Sullivan (2008) describes the work of the Blackfoot Challenge resembles strongly the way their work was described in the interviews. Both the literature and the interviews indicated similar working strategies of the Blackfoot Challenge. Both pointed out that the Blackfoot Challenge brought different people together and worked on finding a common ground. Sullivan (2008) refers to the Blackfoot Challenge as a main factor for improving collective governance and problem resolution in the Blackfoot Valley. Sullivan comments that the

organization's success is largely based on enabling a debate and giving those who are involved an equal voice. Similarly to this description, interviewees described the Blackfoot Challenge very positively and referred to the organization to be a group in which everyone could participate and exchange ideas. The Blackfoot Challenge was open to both government and private individuals. Interviewees described the effectiveness of the Blackfoot Challenge to be due to be working with a group of people with shared interests in sustaining their way of life in the Blackfoot Valley, but they also were able to find common ground and work with people from different backgrounds and with different ideologies.

From the literature analysis, Trout Unlimited was not found to stand out as a major player in the conservation movement in the study area. However, the importance of the organization was repeatedly brought up in the interviews. Because of multiple people bringing up Trout Unlimited, the decision was made to schedule an interview with a representative of the organization. The literature (Seibert, 2007) talked about the involvement of the Friends of the Wild Swan and the Swan View Coalition in the Swan Valley, however, these organizations were not brought up in the interviews.

Conservation easements and the use of these easements came up in the vast majority of the interviews. It stood out that interviewees brought up that Montana's first conservation easement was issued in the study area.

Responses about the protection of the Plum Creek Timber lands differed in the way the importance of the involved players was described. Some interviewees stated that the Nature Conservancy was the primary agent in the Montana Legacy Project, the protection of the Plum Creek Timber lands. Other interviewees emphasized the role of the Blackfoot Challenge in the

protection of the Plum Creek lands. The project was said to not have been possible without the Blackfoot Challenge, because of negative public opinion regarding the project. Some interviewees talked about a major role that the Swan Ecosystem Center played in the protection of these lands was to help with outreach. Some interviewees described Northwest Connections as the organization that brought the different agencies together to form the Montana Legacy Project. One interviewee mentioned the involvement of Northwest Connections and the Swan Ecosystem Center in the Swan Valley and of the Blackfoot Challenge in a parallel movement in the Blackfoot Valley.

Interviewee H summarized the acquisition of the Plum Creek Timber lands with the words:

“Private, state, and federal acquired those Plum Creek Lands when they became a Real Estate Investment Trust and we have the authorities and the funds to do something”.

The interviewees showed strong support and a sense of pride for the protection of the Plum Creek Lands. Support was built on not wanting the landscape built up with houses and expected problems due to a lack of control over Plum Creek and negative effects on wildlife and public access.

The Protection of the Plum Creek Lands stood out to be of major importance from both literature and the interview responses. The responses by the interviewees differed in the exact amount of area that was being protected. While the literature (Montana Legacy, 2015) talked about 310,000 acres of land in Western Montana that was protected through the Montana Legacy project, the statements by the interviewees ranged from 300,000 to 350,000 acres. While all

respondents pointed out that numerous agencies had been involved in the protection of Plum Creek Timber, it seemed that several of the interviewees specifically emphasized the involvement of their agency or organization. A possible explanation for this is that the interviewees simply have the most information about their own organization. However, it also needs to be noted that all interviewees mentioned the involvement of other organizations on the protection of these lands and their collaboration.

The designation of the Scapegoat as wilderness was also pointed out as an important achievement of conservation in the study area. It was noted that while the protection of the Plum Creek lands was emphasized in a large majority of the interviews, the number of interviewees that pointed out the importance of the protection of the Scapegoat Wilderness was smaller and mainly limited to the people who were to some degree personally involved or worked for the Montana Wilderness Association. This can possibly be explained by the protection of the Plum Creek lands being much more recent and by the by far larger group of people who had been involved in the protection of those lands compared to the protection of the Scapegoat.

For most of the themes that were identified in the analysis the respondents of interviewees were relatively similar and responses differed only slightly on some details. Because most of the interviewees are acquainted with each other or have mutual acquaintances and are working towards the same goal it can be expected that some dialogue has occurred in which ideas were exchanged that has formed a general consensus that several interviewees included in their answers. This seems likely, especially since the interviewees repeatedly brought up the good communication in the study area. It stood out that the main disagreements between responses from interviewees were regarding numbers or years. This could be expected since the

interviewees often talked about conservation work that lay a several years in the past and in some cases they had not been directly involved in it. In some cases interviewees also stated that they were unsure about some details and were only certain about the general development. Except for one interviewee who had asked to see the questions in advance, the interviewees did not know the questions before the interview was conducted and thus were not able to prepare for the question.

I believe that I as the researcher had to a certain degree influence on the outcome of the interviews as I asked questions about projects or issues I had heard before because I assumed them to be of high importance. While I attempted to be neutral, these expectations probably influenced the way I asked questions, and evaluated the responses. I also believe that responses from interviewees I talked to in the beginning of the research influenced by way of thinking about conservation in the study area and had influence on the questions I would ask during later interviews. I expected specifically conservation easements and the protection of the Plum Creek lands to be of major importance and my conception might to some degree have influenced the interviewees. However, the interviewees' responses to questions about these issues emphasized the high importance of these issues and while I might have had some influence on their responses I think those themes would independently of my perception of them have stood out to be important.

CHAPTER 6: CONSERVATION STRATEGIES

Literature Analysis

Conservation in the Blackfoot Valley

A major conservation agency working in the Blackfoot Valley is the Blackfoot Challenge. The agency defines itself as a landowner-based group that coordinates management of the Blackfoot tributaries as well as adjacent lands, and has defined its main goal as ‘Better Rural Communities through Cooperative Conservation’ (Blackfoot Challenge, 2016). The Blackfoot Challenge’s mission is to coordinate efforts that will enhance, conserve and protect resources and rural lifestyles in the Blackfoot Valley sustainably, which is done by support for environmentally responsible resource stewardship by combining public and private interests.

Since its establishment, the Blackfoot Challenge and its partners have achieved accomplishments in weeds management, stream restoration, wetland and native grassland restoration, water conservation, fish barrier removal, reduction of human-wildlife conflicts by introducing carcass removal, electrified predator-friendly fences, bear-resistant dumpsters, and involvement of local schools in watershed education. Altogether, over 500 people are involved in the committees, education outreaches, and tours. A total of 73,000 acres have been transferred to new conservation owners and a total of 285,000 acres in the valley have been put under conservation easements through the Blackfoot Challenge. Furthermore, the Blackfoot Challenge has played an important role in introducing conservation easement legislation as well as founding walk-in hunting areas and recreations corridors to Montana (Blackfoot Challenge, 2016).

The Blackfoot Challenge is a “collaborative governance arrangement” (Weber, 2012:37). It includes the USFWS, local ranchers, environmentalists, timber interests, recreation groups, state and local agency administrators, other federal agency officials, and watershed landowners and citizens. The Blackfoot Challenge is an example for a collaborative effort that involves local communities in public problem solving, and has founded more than 100 programs and projects to the advantage of the ecology and the communities in the Blackfoot Watershed.

With the Blackfoot Community Forest Project, the Blackfoot Challenge is working on an effort to restore the ecological and biological integrity of 88,000 acres through the purchase of land from the Plum Creek Timber and other private landowners (Weber, 2012).

Weber (2012:35) describes the Blackfoot Challenge as “award winning” and “highly successful” and states that the work of the Blackfoot Challenge’s collaborative watershed management “offers lessons about robust durability across almost two decades”, and points out that it has received numerous awards such as the Innovations in American Government (2006) and an award from the federal Clean Water Action Plan recognizing its efforts as one of the “nation’s best” for the watershed approach to stream restoration (2003) (Weber, 2012:37).

The work of the Blackfoot Challenge has contributed to improving wildlife migration corridors and benefitted the wildlife in the region. Human—grizzly bear conflicts have been reduced, elk populations are increasing, trumpeter swans have been reintroduced to the area, and populations of Canadian lynx while declining in other areas, are stable in the area. The Blackfoot Challenge has involved 147 landowners and established 500 projects in areas of the highest ecological value, and has achieved the restoration of 38 miles of streams and 2,600 acres of wetlands and the removal of 460 miles of passage barriers for fish (Weber, 2012).

The Montana Department of Natural Resources and Conservation has recognized the Blackfoot Challenge's work in environmental protection, restoration, and stewardship as "serving the downstream public with a measured increase in water quality of the Clark Fork of the Columbia River Basin at the confluence with the Blackfoot River" (Burnett, 2013:3). The Blackfoot Challenge's approach to conservation is community based. It is described to serve as a national model to "spur efforts to conserve vital wildlife habitat and working land through collaborations of private landowners, conservation groups, and state and federal agencies" (Burnett, 2013:3).

Conservation in the Swan Valley

One of the Swan Valley's main conservation agencies is Northwest Connections. Northwest Connections defines the integration of 'Education and Conservation in Montana's Crown of the Continent' as its main goal, and focuses on collaborative and place-based conservation as well as on promoting place-based experimental learning opportunities. Northwest Connections considers itself as a leader in community-based forestry and has the goal of both restoring and maintaining forest and watershed health and maintaining the local rural economy. With regard to conservation, the agency's main goal is supporting sustainable natural resource use and land management. Northwest Connections carries this out by undertaking a number of different approaches. Examples are the agency's efforts in taking carnivore surveys, which help to gain data for retaining and restoring populations of native carnivores, revitalizing the Native Fish Committee, which helps with the process of retaining and restoring native fish populations in the Swan Valley, and is through the project titled Swan Valley Bear Resources providing information about bears in order to reduce human-animal conflicts. The agency's board members

include a large number of university graduates, local residents, the owner of RBM lumber, a local sawmill and logging operation, a wildlife biologist and a ranch owner (Projects, 2015).

Seibert (2007) conducted research about community forest education in the Swan Valley in Montana. She describes the Northwest Connections as a community-based conservation and education organization and points out that it has offered fall semester courses to educate college students about the ecology and culture of the region. This is carried out through intensive involvement with local people and places.

The Swan Ecosystem Center is another significant conservation group situated in the Swan Valley. It is a nonprofit community-based organization that defines its mission to be maintaining the natural resources of the Swan Valley as well as to ensure that sustaining a “vibrant human community can sustain itself through stewardship, education, economic viability, and conservation on public and private lands“ (About, 2015). A major part of the Swan Ecosystem Center’s programs is their Education Program. The agency’s goal is to “create and sustain a learning center that promotes understanding of the land and relationships between people and the land in the Swan Valley” (Education, 2015). Offered programs include informational programs and workshops, adventure camps, hikes, camps, classes, and monitoring and restoration projects. The agency emphasizes that all of their educational programs include “an element of stewardship”, which they define as “the act of caring for most natural resources” (Education, 2015). Further, the Conservation Strategies Subcommittee works for maintaining the traditional uses of private working land, in particular in ecologically significant areas as well as in areas with high values for public access and timber management. The Swan Ecosystem Center

has contributed to the Montanan Legacy Project and announces its interest in protecting the land for “community benefits” (Conservation, 2015).

In June 2015, the boards of Northwest Connections and the Swan Ecosystem Center have decided to merge into a single organization. The two organizations have collaborated closely for years and they hope to be “better able to pursue their long-range vision of success as a unified group” (Swan Ecosystem Center and Northwest Connections to Merge, 2015:1). The cause for the merging of the organizations was according to the newsletter the leaving of Melanie Parker, the director and founder of the Swan Ecosystem Center. Rather than recruiting a successor, Northwest Connections decided to merge with the Swan Ecosystem Center.

Further, the Trust for Public Land is continuing its work in the Swan Valley. The non-profit organization’s work focuses primarily on protecting and restoring working landscapes adjacent to protected areas, and on promoting local stewardship of these areas. The Trust for Public Lands collaborates with the Nature Conservancy and is working towards creating both a healthy economy and a healthy forest (Swan Valley, 2015).

Interview Results

Education

Education, specifically education about conservation stood out as an important conservation strategy.

Several projects in the study area were discussed that are specifically targeted towards schoolchildren. The Swan Ecosystem Center is an organization that runs numerous educational

programs for children, with programs targeted towards elementary and high school students. The programs include different workshops, presentations, and host camps.

The USFWS is involved in projects through which children get to help with releasing Trumpeter Swans into the wild. Trout Unlimited is conducting projects through which students can GPS track bull trout and find them in the field or help with stream habilitation. The children involved were described to be highly enthusiastic about these projects. It further stood out that the children were described to have an influence on their parents and motivate them to get involved in conservation work. *Interviewee E* described the effects of getting children involved in conservation with the words:

“[...] those kids get so excited. And that’s just phenomenal. That will bring our community around. Working hands-on. They don’t really speak public. People stand up there and get pretty upset and pretty excited. Start off with those kids. They take it home. And then good things happen. So, ya I think that’s been huge. And the more they can do that the better.”

The ‘Blackfoot Pathways: Sculpture in the Wild International Sculpture Park’ has education programs specifically aimed at schoolchildren. The program brings schoolchildren to the park where they build their own sculptures. The idea behind the program is that the children get to learn about conservation and get a good understanding of the landscape. This understanding of the landscape includes the idea to keep the landscape as a unit and that people can be a part of the landscape. By the time the interview was conducted (in September 2015), about 350 schoolchildren from different schools have participated in the program in 2015. In 2014, about 400 schoolchildren had participated. Schools from Cascade, the Swan Valley, and

Deer Lodge were among those participating in the program. Children were described to be very enthusiastic about this program and to develop a strong attachment to the Sculpture Park.

Interviewee J talked about the children developing an attachment to the Sculpture Park:

“Probably just kind of a side, it’s important to have these children know about this place and come at this place so there is no problems and you know, they don’t want anything to happen to Sculpture in the Wild now. They’ll protect it. They are part of it.”

From its founding on, education was one of Northwest Connections’ main objectives. The organization primarily targets college students and developed field courses for college students. Initial programs were targeted towards students at the University of Montana and took place during the university’s winter session, while later more residential programs were developed in which students from different universities stay with the agency for a full semester. Students studying with Northwest Connections are hosted or mentored by local families. Through this interaction, a bridge between the conservation organization and the community is built, which leads to community members feeling involved with Northwest Connections and helps improve the relationship between Northwest Connections and the community.

Other projects are aimed towards the education of the general public. Projects like the trail stewardship program by the Swan Ecosystem Center in the Mission Mountains and the Swan Range have the educational component of educating the public about proper recreation in wilderness areas. Examples for education programs are field trips conducted in collaboration with the Forest Service. The programs include discussion about logging techniques and aim to facilitate interaction between the Forest Service and community members. An interviewee said

that many employees of the Forest Service have a good science background but little local experience while many longtime residents have a lot of local experience. *Interviewee M* said the educational program by the Swan Ecosystem Center has the goal to:

“educate the public on all aspects of natural resources, natural history, stewardship, everything related to those topics, throughout the year, including camps for kids. And those sorts of things.”

Forest Management

Sustainable forest management stood out as an important conservation strategy. The study area is a part of a natural fire regime and fires are understood to be a part of the natural system. While in the past it was generally the goal to put all fires out as quickly as possible, nowadays fires are increasingly being managed as a tool. The past fire suppression was so successful that a lot of fuels have built up, which has led to larger fires than would commonly occur. In the 1970s, fires were introduced as a management tool to restore ecosystem processes. Since the mid-1980s fire is increasingly let burn on the landscape. The weather conditions are taken into account when decisions are being made about if fires should be let burn or if they should be put out. *Interviewee H* said about the fire management:

“It’s in the 1970s. There was some early experimentation and then in the 1980s we started using fire more. Allowing fire to burn in the wilderness areas. You know, not just in a prescribed way. In a way where we thought and then this area is large enough it can burn for a long time, we can protect whatever values we have out there. And it’s not worth putting a lot of resources and people at risk. Cause a lot of that country where we allow that to happen, is inaccessible.”

The Mountain Pine Beetle has had an increasing influence on forest management over the past years. The mountain pine beetle (*Dendrotonus ponderosae*) is an insect that lives under the bark of pine trees. The beetles specifically affect dense stands of pine trees with a large diameter (over eight inches), (Gibson et al., 2009) The main reasons interviewees see for this change is a climate change (warmer winter temperatures kill off less beetles) as well as increased food supply for the beetles which need trees of a certain age and size. Large even aged stands of trees, often the effect of large fires, are particularly vulnerable to Mountain Pine Beetles as well as to other insects like spruce budworm (*Choristoneura*). Thinning the forests helps reduce tree mortality because it reduces the spread of the beetle. While if no thinning occurs, the mortality of trees was according to experiments by Lubrecht Forest in some areas between 80 and 90 percent, thinning helped to reduce the mortality to between 5 and 20 percent.

The Swan Ecosystem Center has a forest stewardship program in which they raise funds the support private people doing forest stewardship programs on their private property. The management on those private properties includes fuel reduction and habitat improvement.

Conservation Easements

Conservation easements are a conservation strategy that the large majority of the interviewees describe to be of importance in the study area. A number of different agencies and organizations were brought up to be working with conservation easements. These agencies include the USFWS, and the Montana Land Alliance. In several interviews, the respondents' personal experiences with conservation easements on the land were brought up. An important aspect in conservation easements was that they had to be matched directly to the landowners needs. Conservation easement agreements include the obligation to not break up native prairie,

drain wetlands, harvest gravel or build more. The conservation easement allows the landowners to manage their property freely but if new owners want to make major changes they will need to get permission from the conservation agency. Landowners brought up that flexibility is important because future developments are hard to predict and they do not want to commit to a form of land management that does not allow them or their children to react to these changes. Representatives of the agency come to the property about once a year to talk to the landowners, look at the property, and ensure that the landowners follow the conservation easement.

Reasons that were brought up for putting conservation easements on the land were preventing a subdivision of the land, a building up of the land, a removal of trees from the land, as well as the cash payments for the lost land value. Other important factors that influenced landowners towards putting easements on their land were a general concern about the landscape and wildlife migration, and specifically the Blackfoot River. Involvement of family, friends, and neighbors in conservation also played a role in deciding for conservation easements. Landowners were hoping that future owners of the land would maintain a similar usage of the land, for example keep raising cows. Through the partnership with the conservation easement the landowners also gain support from another agency that wants them to succeed, which brings money, science, and expertise into the area.

Major concerns had been that putting an easement on his land might isolate the land it would in the future be difficult to sell the land. However, by now the lands with conservation easements are selling for a higher price than non-conservation lands.

Recreation

Enhancing and increasing sustainable recreational opportunities in the study area is a way to improve the economic condition and at the same time increase people's appreciation of the environment. Several different organizations and agencies are committed

The Montana Wilderness Association is working on improving recreational opportunities with the goal to make the area a better known and higher quality destination for recreation. Recreation here includes people going into the wilderness areas as well as snowmobiling and mountain biking. The goal is to develop a year round recreation economy. The agency is collaborating with snowmobilers by allowing them to use a conservation area for snowmobiling in exchange for the snowmobilers supporting the addition land to the wilderness.

Interviewee H described the use of forests for recreation:

“And then just the community at large, right. Just the public that comes to the forest, that uses the forest for recreation and enjoys it for a variety of you know backcountry hunting, fishing, cherry picking, camping, you know, boating, you name it. All the things that occur in National Forests.”

Individuals worked in the study area as outfitters, guiding hunters and tourists in the backcountry. Ecotourism is seen as an option for the future in the study region and to have a potential for the economy, the environment, and the community.

The Swan Ecosystem Center is involved in a trail and backcountry ranger program. For the program, contractors are hired who work with the Forest Service to open trails in wilderness areas and provide wilderness ranger services. The Montana Wilderness Association is working on

a comprehensive trail system study between communities in the area. Watchable wildlife like wolves, bears, or swans draws people into the area and this could potentially bring tourists in.

Interviewee N said about ecotourism:

“I really believe that this constitutes a realm and element of economic opportunity here that is both needed and has potential. And I would really like to see that expanded to some, you know, some degree, because it is actually not really been well developed or explored here in the area.”

The interviewee further said:

“Both the Northwest Connections, I did it with my outfitting business, and still do, on a very small scale, and I think it could be beneficial to the environment, and the community and the economy to have an appropriate model in various you know, business models out here doing just that. Elevating people’s awareness of what we have here building people’s connections to nature which is essential for decision making at any level. And strengthening and economy that is struggling at best as long as I have lived here.”

Skepticism towards promoting the study area for recreation in the past had been due to concern about the large areas of potential real estate lands attracting outside buyers. However, because the landscape is now primarily public land, the promotion of the area for recreation and ecotourism are seen as potential flows of economic benefit for the rural communities.

The study area was described as a working landscape that is supporting an economic base and supporting communities.

Invasive Species

Invasive species are seen a serious issue in the study area. A major issue with invasive species is that many of them do not have natural enemies, which makes it harder to manage them. Combinations of biological, chemical, and cultural practices are being used to suppress invasive species in the study area. The Blackfoot Challenge for example has an invasive species committee. The Swan Ecosystem Center provides grants for weed management to private landowners.

Rainbow trout is an example for an invasive species that was brought up in the interviews. Rainbow trout is an invasive species in the study area that hybridizes with cutthroat trout. Most projects of Trout Unlimited focus primarily on improving pool habitat and reducing stream temperature on both public and private lands. This restoration work has benefitted primarily native trout and led to an increase in population. The goal is to restore the streams to a working system that will benefit the native trout population as they are adapted to it.

Invasive weeds are a major issue along the Blackfoot River. They were described to be the biggest threat to native prairie. *Interviewee J* stated:

“Everybody likes to talk about weeds. Everybody wants to get rid of weeds.”

While not stated explicitly, it can be assumed that the interviewee here referred to invasive weeds.

Interaction with Wildlife

Projects aiming at improving the relationship between humans and wildlife in the study area were repeatedly brought up.

The Swan Valley Bear Resources program is aimed specifically at improving the relationship between humans and bears. The Swan Ecosystem Center, Northwest Connections, the Forest Service, and Montana Fish, Wildlife, and Parks are involved in the program. The project works on reducing conflicts by reducing attractants for bears on properties through working on bear resistant garbage cans, and electric fencing.

A carcass removal program was created to help reduce attractions for wildlife near settlements and livestock. Different organizations including the USFWS are involved in the project. If livestock dies, landowners only need to call their partners and they will come to pick up the carcass and thus remove the attractant for wolves or bears. This way livestock can be protected without harming the predators. *Interviewee F* said about the carcass removal program:

“We call them off and they compost it. So it takes the attractant away, right. And all of a sudden the bears and wolves don’t have a morass board on our ranch. So it seems really simple when you look at it from that side. ‘Cause you go, yeah if you don’t want problems, why do you keep that stuff there? “

Additionally, wildlife monitoring projects including carnivore monitoring are being carried out in the study area. Studies include long-term studies of where animals are present. According to an interviewee relatively little is known about Canada lynx, wolverine, and fisher, while bears and wolves have been studied extensively. Projects also include making treatments on the landscape and restoring the area and analyzing how this work is benefitting wildlife. Previous studies focused heavily on grizzly bears because there was a lot of disagreement on the numbers of grizzlies in the area. Studies included collecting DNA of bears.

Another interviewee talked about the efforts of the Blackfoot Challenge to reduce conflicts with wildlife. The interviewee gave the example of using electric fences to keep wolves away from the cattle. *Interviewee F* said:

“If you are trying to run a ranch in this world by yourself you better be really what you know, you wanna be really all kinds of things, where we have had the resource watershed group like the Blackfoot Challenge, they bring us all these sets of tools, so you know, we’ve got electric fencing, and you know, a product called flattery, which is a polywire electric fence for red flags that wolves don’t like so can use that to wolf activity put it out very quickly. And sort of just keep a little bit of a barrier between cows and wolves. This worked very well with grizzly bears. ”

Interviewee F also said that being a wolf-friendly ranch can lead to a better reputation, which can be beneficial for selling their products:

“I’m sure there’s a lot of people across country that want beef but if you find out that we’re just we’re just out here to make money and that we don’t care about the wildlife, we’re not marketing our beef very well and we could we market it as wolf, you know, wildlife friendly beef. Wolf friendly beef that might be a tag for us in the end.”

Struggles in conservation work

Although the overall notion of the conservation work in the Blackfoot and Swan Valleys stood out to be highly positive some struggles and issues in which the current conservation practices can be improved stood out from the interviews.

An interviewee expressed concern because of many people losing interest in conservation work because they think that because the Montana Legacy Project was successful, the area overall is saved. However, according to the interviewee, major conservation issues continue.

Struggles occur in the coordination between conservation agencies and governmental agencies. Bureaucracy was described to be a major struggle for conservation work. It is very hard to change the way bureaucracy operates. Particular problems are a slow working of a regulatory agency and the fact that the regulatory agency requires large amounts of information about projects. *Interviewee D* said:

“I think the bureaucracy is still, of course, that’s where I know the most about, so it’s my biggest frustration, if I knew more about something else, I might say, oh no... But getting the bureaucracy to changes is a difficult thing.”

Budget issues were seen as a major issue by some interviewee, specifically with regard to non-profit organizations. A lot of their projects are being finalized through government grants or foundations. However, another interviewee said that finding funds was not an issue as long as one had a good project.

Practicing conservation in a rural community in general was described to be a struggle, mainly because some members of the community are not conservation minded or that some

people want to keep the area the way it is and disagree with the conservation methods the agencies are using. The Swan Ecosystem Center struggled with critiques in the past. Many people opposed partnerships with federal agencies like the Forest Service. Many residents are strongly opposed to involvement of the federal government in the study area and are skeptical about employees of conservation agencies working for federal agencies. Conflicts between loggers, developers, and environmentalists or conservationists in the history of the study area were repeatedly brought up. Mistrust towards the conservation agencies was another major issue that came up. It was also said by several interviewees that the overall relationship has improved and that the dialogue between the groups has become more civil. However, two interviewees also pointed out that a negative development is occurring with regards to acceptance of conservation and that misinformation and mischaracterizing the work of conservation agencies has increased.

Newly arriving people are seen as an issue by some interviewees. Many newly arriving people were observed to have a lack of knowledge about the area and not to know what to do. However, *Interviewee E* also said:

“Most of them are very willing to listen and get involved.”

Several interviewees discussed the economic future of the community. Concern was expressed about the fact that there are only few young people in the community. The number of second homeowners and retired people living in the area is increasing. Additionally, only few employment opportunities are available in the area. It needs to be considered how people can make a living when looking at land and resource conservation. The land on the Upper Blackfoot is gaining more and more value, which makes it increasingly hard for landowners to make a living off their land in that area. It was also pointed out that the question is what opportunities can

help the community improve the local economy without compromising the special aspects of the environment.

Discussion

The interviewees brought up a large variety of currently practiced conservation strategies and projects. The strategies were organized according to the sub-nodes: educational programs, improved forest management, conservation easements, recreational activities, management of invasive species, and interaction with wildlife.

It stood out that most conservation agencies are involved in different kinds of conservation strategies. For example, Northwest Connections conducts educational programs, specifically targeted at students of college age, but also works with wildlife monitoring and showed strong involvement in the protection of the Plum Creek lands. The Blackfoot Challenge mainly seems to aim to bring people together and facilitate conversation but also works with conservation easements. The Swan Ecosystem Center similarly is strongly involved in education but also works with conservation easements. Trout Unlimited has a strong focus on stream restoration and protection of native trout but is also involved in educational projects. Most agencies are involved in a number of projects on which they collaborate with other agencies on various conservation easements.

It is in many cases hard to differentiate clearly between the different conservation strategies that are being applied in the study area, as many of the strategies are interrelated and can be seen as a part of multiple strategies. For example educating people about sustainable recreation can be considered a part of the strategies recreation and education, while other projects observe wildlife while at the same time educating the public about wildlife

Interviewees emphasized the promotion of recreational activities that are in compliance with conservation. Interviewees also pointed out that tourism is a way of improving the economic situation of the area. Similarly, the education programs, specifically educating children about conservation, which is being done by various organizations, are more of an indirect conservation strategy as they aim to change people's view on conservation. Although education is unlikely to have very fast effects in conservation work, it shows long-term planning. Educational programs further show the importance of gaining overall support in the community. Through the children's influence on their parents, education of children can in some cases also have faster effects than one would commonly expect. Improving the interaction between humans and wildlife has direct effects through less killed livestock and less killed wildlife, however it also has a less direct but long-term effect through changing people's attitude towards conservation in general. Programs in forest management and invasive species management on the other hand form a more direct approach to conservation through which directly the situation of the ecosystem or specific species is improved.

Many interviewees stated that they initially had to overcome differences in the community but that once their work had become accepted their conservation approaches in the study area were successful. Interviewees also pointed out issues with which they are still struggling with regard to conservation work. Major issues were finding sufficient funding as well as the coordination of conservation plans between conservation and governmental agencies. Some parts of the community still strongly oppose conservation approaches. It stood out as surprising that two interviewees described that recently a negative development in conservation was taking place and that a stronger opposition to conservation was developing. Another major issue is finding ways in which conservation can be combined with the economic viability of the area. If

improvements in the identified issues could be made, it could potentially contribute to the improvement of the overall conservation in the study area.

CHAPTER 7: PERCEPTIONS ABOUT CONSERVATION

Literature Analysis

The literature only provided few sources about perception of conservation in the study area. Several previously conducted studies included information on perceptions of conservation in the study area. Their findings related to this research are described below. Most of the studies focused on perception of specific aspects of conservation. Particularly about perception of conservation in the Swan Valley little information could be found. This research therefore aims to fill this gap in the literature.

Weber (2009) finds that in the Blackfoot Watershed a core vision for the place was developed by stakeholders. According to the author, the following aspects were to be preserved: a rural setting, wide open spaces, a working landscape which involves traditional livelihoods, a “healthy, vibrant, visible nature” (Weber, 2009:318), owner-occupied housing, and limited numbers of retail shops, restaurants, and urban-style malls.

Duvall (2006) studied landowner perspectives on the Blackfoot Community Conservation Area. Through the Blackfoot Community Project, 88,092 acres of former corporate timberlands were purchased. A portion of these lands (5,600 acres) were designated that the Blackfoot Community Conservation Area. Duvall found that the landowners who participated in the survey for this research “recognize the multi-faceted and symbiotic relationship between ecological and social benefits” (Duvall, 2006:67) and that people “see and value an intimate connection among timber, rangelands/grazing, wetlands/riparian areas, weed management, wildlife habitat, public access, recreation, aesthetics/viewshed, and the area’s linkage to public lands” (Duvall, 2006:67). People further valued public access and recreational use of protected areas. The author found that

locals value inclusiveness but also an increasing diversity in the Blackfoot Valley when asked about who the Blackfoot Community Conservation Area should be protected for.

DuPont (2011) conducted a study about conservation easements and opposition to the creation of conservation easements in Western Montana. The interviewees who had decided against conservation easements on their land were interviewed. In the Blackfoot Valley, DuPont found that the interviewees in the Blackfoot Valley had been informed about the Blackfoot Challenge and the conservation agenda the Blackfoot Challenge and other organizations and individuals supported. DuPont concludes that concerns about conservation easements and the organizations that promote these easements are complex and included being uncomfortable with the “perpetual nature of conservation easements” (DuPont, 2011:81) and worries about negative financial impacts in the future and a loss of control.

McKay (2012) conducted a case study in which he analyzed the attitudes and perceptions on the Collaborative Forest Landscape Restoration Program and the Southwestern Crown Collaborative. The area defined as the Southwest Crown of the Continent in McKay (2012:9) overlaps largely with the study area in this research and includes large parts of the Blackfoot and Swan Valleys. Members of the Community Council and engaged participants were selected for the research. McKay’s (2012) findings included that respondents showed doubts about the Forest Service’s ability and capacity to complete their work on the projects, concerns about bureaucratic complications, government involvement, and concerns about the project being biased towards environmental groups. Respondents favored the hiring of local people but had doubts this would be carried out or would be sustained in the long-term. McKay (2012) found that the respondents

saw a lack of knowledge about the project among many residents of the Blackfoot and Swan Valleys.

Interview Results

Definitions of Conservation

The overall consensus from the interviews is that the participants defined conservation to be the wise use of natural resources or land and maintaining resources or options for the future or for future generations.

It was seen as important that the conservation approaches look at conservation within natural boundaries like watersheds, instead of artificial boundaries like political or ownership boundaries. Further it was pointed out that a holistic approach should be applied in conservation.

Interviewee F said about the holistic approach:

“You know, we’re just sort of caretakers, stewards to that land. And wanna make it the best we can for whatever generation that is in the future. So now that’s a long win, that’s what conservation is... But it’s you know, it’s way way bigger than you some are saying it is. You know... one or two things. It’s just really holistic approach, it’s really important. ”

Conservation was defined as the mixed use of preservation and utilization of land and resources. It was said that conservation was the protection of valuable natural resources. If resources are being used, they have to be used wisely. An understanding and respect for natural processes and wildlife is an important part of conservation. However, while the respondents saw resources as something worth protecting, it was also repeatedly pointed out that the resources are

needed by locals to make a living. If people cannot make a living, conservation will not be successful because it will lack support by the local people and no sufficient resources will be available. *Interviewee H* said:

“That our resources provide not only for our lives but for our livelihoods.”

Conservation means to sustain the natural system and to ensure that families that live and work in the area can find a way to make a living. It is important that the system, the people are making their livelihoods in, is sustained. The interviews showed that the overall perception was that in the study area the combination of living of the land and at the same time practicing conservation is working well. People should not be looked at detached from the ecosystem, since they are a significant part of it and have strong influence on the system. Instead of disregarding humans when looking at the ecosystem, one should aim to find ways that make the effects of humans on the land sustainable. *Interviewee I* said:

“I mean to me conservation is about the resources and it’s also about the rural way of life in Montana. And I just feel... I hope we have both. I love going on a ranch, I love going in the wilderness. And our state is just so amazing.”

Using the land wisely and sustainably so that it would be conserved for future generations stood out as a major part of what the respondents perceived conservation as. *Interviewee B* specified wise use for the benefit of future generations by saying:

“I look at it as, we’re here for a while, let’s manage, let’s look after the resources that have been given to us in such manner that where we pass it on now, they all, people have options for the use of that.”

Interviewee I similarly said about conserving land for future generations:

“I mean that’s just me personally talking but I don’t know, I guess, the work I do is for the next generation, I guess. I hope it benefits the generation now, but I really hope it makes a difference for tomorrow.”

Several participants brought up that it is important to them to protect the land so that specifically their children and grandchildren will be able to experience the land in the same way the respondents did. *Interviewee J* talked about the meaning of the protection of the Scapegoat Wilderness:

“It is important for me to leave for my kids or course, you hear it all the time, for my kids and their kids and I have a little granddaughter now and I would hate her not to know that the Scapegoat Wilderness could have been a beautiful wilderness area but it is a logged of eroded area now. I would hate to her not have known the beauty of that. And she’ll get to know that. And my children have gotten to know that.”

A potential issue with targeting conservation efforts primarily toward future generations is that unpredictable issues can come up and destroy the plans for the future. This was specifically mentioned with regard to conservation easements, where restrictions that are now being put on the land might limit possibilities in the future.

Perception about Conservation Changes

The overall consensus of interviewees with regard to the question of how conservation has changed in the study area is that conservation has become more accepted and appreciated in the area. Some interviewees, however, noted a negative development. Several interviewees stated

that due to relatively short times of them living in the study area it is hard for them to make a statement about the changes in perception of conservation in the study area.

People in the study area are described to have become much more open to conservation. Early on a lot people were skeptical towards the conservation movement and concerned about the economy of the region as well as property rights and taxes. By now, people were said to have a much more positive view on conservation and realize the advantages of a community-based approach to conservation. *Interviewee B* described the changes in the way conservation was seen:

“They were concerned about property rights, taxes, something, you know, those were legitimate questions. But when they realized, and I think that’s the beauty of the community-based approach to conservation, it’s a hell of a lot more work but in the end you get a result that the community buys into.”

Involvement of the public in conservation has increased significantly. A change from an individual to a community motivation in conservation was described. The strong involvement of the community was often seen as a reason for the success of the conservation movement. The group of people involved in conservation work has changed and become a lot more diverse. It was said that the majority of the ranchers in the study area have changed their view of conservation to a more favorable one. With the involvement of a larger group of people the conservation mindset has become more collaborative. *Interviewee E* said:

“I think the most important thing that I can think of it went from being motivated by individuals which is how it kind of got started, individuals, three or four, half a dozen, to communities.”

The popular understanding of conservation easements and open space management was specifically described to have undergone major changes. The notion that there is enough land for both wilderness and sustainable timber harvest represents another major change in perception of conservation. The perception of wilderness has also changed significantly. While wilderness used to be a highly controversial topic, by now wilderness is commonly appreciated. A good example for the way wilderness is now perceived is that in 2014 about 2,500 people in Seeley Lake alone participated in celebrations for the anniversary of the Wilderness Act.

Overall the local citizens were described to have become more knowledgeable. A trend toward an overall ecologic literacy was described. One major example is the way fires are perceived. While about fifteen years ago people were still in denial that they are living in a fire-torn ecosystem, they now understand that fire is needed.

Two interviewees primarily talked about changes in perception of conservation to the negative. Older residents who were the original European descendent settlers and had been there for a long time were described as open-minded and willing to learn. However, many people from generation died in the 1990s and early 2000s and their children and grandchildren often left the area. The new people who are coming in were described to be trying to escape regulations and are often opposed to follow conservation regulations or advice. *Interviewee L* said:

“And so we’ve seen a lot of increase to rhetoric locally about how conservation impacts people’s freedoms. And there has been a bit of an organized backlash. But mostly not a backlash from the people who have always been there, a backlash from new residents, or a combination thereof.”

Perception about the Study Area

The interviews have shown that the study area is perceived as a beautiful and special place by the interviewees. The landscape's richness, diversity, and complexity as well as people's understanding and connection to it were seen as contributors to successful conservation. Elements of the landscape that contributed to the perception of specialness include the mountains, the Blackfoot River, and wetlands.

Statements like *"I guess I am pretty lucky you know to live in a place like this. A pretty special spot in the universe, really. There's not... there's maybe one or two places like the Blackfoot Valley in the whole world. You know, as intact."* (Interviewee F) and *"We believe the Swan Valley is a beautiful, intact, rural community that has great ecological values."* (Interviewee M) can be said to represent the overall consensus of the participants.

Several participants drew connections between seeing the landscape as something special and seeing this perceived specialness as a something that makes the area work protecting. Interviewee A said the following about the Blackfoot in connection to talking about a proposed goldmine near Lincoln:

"The idea that the Blackfoot was a really precious place that shouldn't be, you know, threatened with something like that. And... I mean I guess the reasons go on and on. I mean the Blackfoot is lucky. I mean if only a lot of other places in Montana had the history and the communities that the Blackfoot has. I mean Norman McLean's book you know obviously drew national attention to a place that maybe otherwise wouldn't have had national attention."

Intactness of the study area was seen as a major factor that contributed to the area being perceived as special. It was stated that only few areas that are as intact as the study area exist in the U.S. What was seen as especially significant with regards to wildlife is that almost all species and all predators that had been there at the time of Lewis and Clark can still be found in the study area. The study area's high level of intactness contributes to the strong interest in conserving the area.

Interviewee C described this with the following words:

“And people care about that. People that live here care about that. People that come here and visit here care about that. People that don't even come here can care about that. And so you know I think because of you know how intact this place is there is just not a lot of places left in North America that you know look like this.”

Conservation in the study area was seen to be special due to the diverse groups being involved, the efforts allowing for a combination of economic development and conservation, and the good relationship among the involved groups.

Discussion

Analyzing the responses to questions about the personal definition of conservation, there seemed to be a general consensus on what conservation means. The responses of most interviewees were closely related to a wise management of natural resources and maintaining resources for future generations. These definitions closely resembled the definitions found in the literature. It further stood out that while many interviewees gave definitions that closely

resembled those definitions some interviewees also discussed more personal views by talking about their personal motivations for participating in conservation, for example hoping to conserve the land for their children or grandchildren.

As the majority of interviewees works intensely with conservation, it can be expected that they are well aware of the general definition, which most of them have included in their response. It is possible that because many of the interviewees know each other and work or have worked together they use similar definitions for conservation. Because statements the interviewees made during other parts of the interviews that relate to the topic were also included, it is possible that those responses differ to a certain degree from the definitions that were given directly as a response to the asked question. The lengths of responses to the question as well as the personal level the interviewees discussed differed significantly. Slight differences in the way the question was asked could have contributed to this. Additionally, the question about the personal definition of conservation was generally asked at the end of the interviews. Therefore it is possible that interviewees who were under time pressure answered the question more briefly than others.

The interviewees generally showed a very strong attachment to the place and strong personal motivation for protecting the land. It seemed like the strongest emotions were shown when the interviewees talked about maintaining the land for their children and grandchildren. This strong emotion was observed when the interviewees talked specifically about their own children or grandchildren or their own land. While the more general idea of protecting the overall area for future generations was also strongly supported, it seemed to show less emotions than the more specific and personal aspects of conservation. It needs to be pointed out that this interpretation of emotional responses are mainly due to non-verbal indicators like mimic and

gesture as well as the way the interviewees talked. To a large degree this observation comes from the way I experienced the responses by the interviewees. This interpretation is largely subjective and might be interpreted differently by other researchers.

The interviews have shown that the interviewees define the landscape as beautiful or aesthetic under both aspects of aesthetics as described by Kalivoda et al. (2014). While the interviewees referred to different elements of the landscape like mountains and the river, and wetlands but they also talked about strong personal feelings for the area and a connection between them and their family's history with the area. This can also be related to the space versus place dichotomy, which is discussed above. The study area is seen as a place, because it has been attributed strong meaning by the respondents.

The perception of the area as 'special' is in so far not surprising as individuals and groups that are engaged in protecting the area were interviewed. The relatively high percentage of interviewees described the study area as special could to a small degree have been influenced by my comments. In some interviewees I made statements about the area being beautiful, mainly in the initial phase of small talk of the interview. My personal perception could in so far have influenced the responses as it might have reminded the interviewees that they could talk about their own perception of the area. It is interesting to note that the perception of the study area as special was seen to contribute to the success of the conservation movement because it indicates that the area is worth protecting. At the same time the large success of the conservation movement is seen to be something special contributing to the perception of the study area overall as being special.

The perception of the study area as special and worth to be protected also relates to the earlier introduced concept of space and place. Following Tuan's (1975) definition of space and place, the study area is a place due to the humans inhabiting it and to their personal experiences from present and past and expectations for the future. Even though parts of the study area are only thinly inhabited, they are still seen as place rather than space because of the strong connections humans have to the land. Similarly to Gieryn's (2000) description of place, the meaning the locals attribute to the Blackfoot and Swan Valleys come from their own experiences. Gieryn (2000) states that the longer people have lived in a place the stronger their attachment to it is. Most interviewees have lived in the study area for a long time, some of them their whole lives. A strong place attachment can thus be expected. The individual's perception of the study area as unique and worthy to be protected is what defines the area as a place.

The analysis of the perception of conservation has shown both intrinsic and extrinsic motivations for conservation to be present in the study area, similar to Kennedy et al. (1988). Intrinsic motivations are motivations that are directed towards nature such as the motivation to preserve the intact system, to protect wildlife, and to remove invasive species or let wildfires burn in a natural way with the goal to return to the natural system. Extrinsic motivations for conservation are conserving the area for economic reasons, for recreation, or for personal attachment to it.

Similarly to Kalivoda et al.'s (2014) differentiation between the objective and subjective perspectives on visual aesthetic quality, the interviewees' responses suggest the landscape being special from both the objective and the subjective point of view. Objective elements of the study region that are seen to be special include the previous success of the conservation approaches, the

area of land that has become protected, as well as changes in conservation law that have been achieved due to involvement of citizens from the study area. Subjective elements include seeing the landscape as beautiful and special.

The analysis of the interviews has shown that to a certain degree the goal to gain strengths from different viewpoints in conservation has been achieved as described by Green et al. (2015). The interviews have discussed a diverse community that is involved in conservation in the study area. While it was seen as strength to have a number of people with diverse backgrounds and stands on conservation involved in the movement, it also stood out that some conflicts with individuals regarding conservation still exist. These individuals still represent a challenge for the movement and the movement is currently not gaining from these individuals. While Green et al. (2015:386) talk about the involvement of individuals and groups from different “belief systems, social structures, and backgrounds” this can currently only partially be found in the study area. While individuals involved in conservation come from different backgrounds in the sense that they have different professions, the involved individuals seem to be sharing a general belief system that can be seen from the relatively similar perceptions of conservation.

CHAPTER 8: COLLABORATION IN CONSERVATION

Literature Analysis

An analysis of the literature of collaboration in conservation in the study area has shown a focus of the literature on the work of the Blackfoot Challenge in the Blackfoot Valley.

Wyborn and Bixler (2013:59) describe the nature of collaborative conservation on four examples, including the Blackfoot Challenge and explain that the examples they chose are a part of a “newly emerging ‘collaborative conservation’ movement in North America”. The article refers to the Blackfoot Challenge as a leader in “place-based collaborative conservation” (2013:62) that connects landowners, agencies, and land trusts. An example for collaboration between agencies is the collaboration of the Blackfoot Challenge and the Nature Conservancy on the purchasing of the Plum Creek timberlands. Wyborn and Bixler (2013) state that the Blackfoot Challenge applies a consensus-driven decision-making process that includes a diverse set of actors. They point out that not on every issue or decision consensus can be found. The Blackfoot Challenge uses the so-called 80/20 rule. The authors explain that the working towards an 80 percent agreement is based on the “relative homogeneity of livelihood and conservation interests” (Wyborn and Bixler, 2013:63). The work of the Blackfoot Challenge is based on trust in the community and in partnerships. The close spatial proximity of the actors makes it according to Wyborn and Bixler (2013) more difficult to hold strong views if they are not shared by the neighbors. Agency buy-in is described to be a major contributor for the success of the Blackfoot Challenge.

Bixler and Taylor (2012:237) state that for successful collaboration of the Blackfoot Challenge, the following factors have been of major importance: “its focus on building

partnerships and trust, maintaining organizational and programmatic adaptability and flexibility, and remaining small and landowner-driven”. The authors (2012:237) articulate that a reason for the success of the Blackfoot Challenge in the Blackfoot Valley is the “rich combination of public and private partnerships” and that watershed partnerships play an important role for managing the partners’ conservation efforts. Trust is further a major factor in the development of partnerships. Bixler and Taylor (2012:237) state “The Blackfoot Challenge has institutionalized the values of collaboration within their partnerships, leading to highly transparent decision making processes, accountability for conservation and economic development projects, and internal and external legitimacy”. The article further points out that the Blackfoot Challenge is collaborating with the Swan Ecosystem Center and the Rocky Mountain Front in the ‘working-lands committee’ and initiatives operating in the Crown of the Continent. These collaborations tend to lead the Blackfoot Challenge to adopt changes and to institutionalize arrangements.

Weber (2009) describes the collaborative nature of the work of the Blackfoot Challenge. The author says that stakeholders meet at least monthly in meetings that are open to the public. If the organization is involved in large projects, meetings are held weekly. There is also an annual social gathering. Further, stewardship outreach, demonstration projects, watershed and community tours, and education outreach programs are being held.

Cestero (1997) analyzes environmental collaboration in the Swan Valley. The author expresses that collaboration consists of complex dynamics. “Successful community based collaborations will entail a thorough understanding of the dynamic relationships within a given community of place and between that geographically defined community and interests beyond its borders.” (Cestero, 1997:149). Cestero (1997) found the building of community well-being,

developing more meaningful public participation in decision making in the USFS, and integrating the protection of the area's ecology with the rural lifestyle and the economy are potential results from community collaboration. Cestero (1997:149) further sees that "the Swan Citizens' ad hoc Committee's greatest contributions have been toward building community capacity within the Swan valley". Relationships built through collaboration are described to be a major part of community collaboration and communication can help reduce divisions or conflicts in the communities. One concern in collaboration work in the Swan Citizens' ad hoc Committee the author points out is to broaden the participants so that benefits can reach larger portions of the valley's population. Cestero (1997:152) refers to community collaboration as a "'bottom-up,' decentralized decision making process" and moreover describes the work of the Swan Citizens' ad hoc committee as a "participatory democracy" (1997:153) and says that participants are no experts but individual volunteers who are "dedicated to the care of their community and its landscape" (1997:153).

Interview Results

Collaboration within the Local Community

Bringing people, specifically local people, together and involving them in the process of making decisions, stood out as a major part of successful conservation. The participation of the local community is of crucial importance and the conservation movement has the goal of including as many community members as possible. Participation in the conservation process is voluntary. The Blackfoot Challenge is an organization that specifically stands out for ensuring that everyone is involved in the conservation process.

Interviewee A emphasized the importance of citizen involvement:

“One [thing that contributes to successful conservation] is a long history of citizen involvement and taking care of the landscapes in the Blackfoot and Swan Valleys for many many decades. People who live and work in those valleys have decided to play a really active role in the way those places are managed”.

A major transition that has occurred in the study area is the shift from conservation that is predominantly motivated by individuals to conservation that is primarily motivated by the overall community.

The conservation movement was started within the local community and was not brought in from the outside, which contributes to acceptance of the movement and thus leads to successful conservation practices. *Interviewee A* described the importance of the movement starting within the local community:

“But people like her [Becky Garland] who have been involved in putting things together, I think the key is at all same from the ballot, from the communities, from the people in the valley. It didn’t come from outside, it came from here. That’s why it’s been successful. And that’s... that’s really important.”

Top down decisions are being avoided and local people should be empowered to be involved in land management and conservation. However, new part-time residents, who are often wealthy, can also contribute to conservation success in the study area. The new residents bring income as well as contacts and time to the region and many of the newly incoming people want to take good care of the land. It can be said that the region is very fortunate to have the collaboration with people coming from the outside and long-time residents and that there are good people on

both sides. However, it also stood out that many locals are opposed to involvement of the federal government in the area as well as to outsiders telling them what to do.

Commitment of dedicated local individuals is another factor that contributes to the successful conservation approaches in the study area. Key individuals who were repeatedly named to have played a key role are Cecil and Becky Garland, Land Lindbergh, the Mannings family, Hank Goetz, and Tim Love. Cecil Garland was named repeatedly to have been strongly involved in the designation of the Scapegoat as Wilderness. *Interviewee B* described some of the involvement of those key individuals with the words:

“all these people that spent a lot of you know, their own time, uncompensated, a lot of evenings, blood, sweat, and tears doing it”

Collaboration of Organizations/Agencies

A good and efficient collaboration between the organizations and agencies involved in the study area stood out as a major contributor to successful conservation. Involved agencies include the Department of Natural Resource and Conservation, the Forest Service, Montana Fish Wildlife and Parks, the USFWS, the Bureau of Land Management, and conservation agencies including the Blackfoot Challenge, Northwest Connections, the Swan Ecosystem Center, Trout Unlimited, and the Elk Foundation. *Interviewee H* summarized the collaboration of organizations and agencies in the study area with the following words:

“... I mean that [conservation projects] is really the nature of the work that I did. Because it’s all on public lands and all has to do with conservation and management of those lands. But trying to be specific to I think your project you

know, a lot of this work involved partnerships because you know in the United States we have this interesting, especially in the Western US, ownership pattern, where we have federal lands, and different federal agencies, like the National Park Service, the National... the United States Forest Service, US Fish and Wildlife Service, Bureau of Land Management. And those are all agencies of the federal government. And so there is this kind of you know collaboration network. And those among our federal partners but also with state. The Department of Natural Resource and Conservation, State Forest Lands, or Montana Fish Wildlife and Parks, that has responsibility for species that are not listed as an threatened or endangered which the federal government manages. So there is a lot of coordination with the state organizations. And then the mix of non-government organizations like the Blackfoot Challenge or Swan Ecosystem Center or Northwest Connections. And then Trout Unlimited, you know the Elk Foundation. I mean many many organizations like that.”

Vertical integration is a factor to successful conservation in the Blackfoot and Swan Valleys and partnerships between grassroots groups and state- or nationwide groups are highly important. While the grassroots groups can organize local support with people who are personally affected, larger state or national groups have a larger amount of resources.

When agencies are getting involved, it is important that they do not come in and take over control abruptly. Instead, they should be working with the local people and slowly be getting involved. The initial step should be listening to local residents. It is also important to give locals the chance to get involved and even allow the chance for them to make mistakes.

Collaboration between agencies like the Forest Service and the community is of high importance and improves effectiveness of conservation efforts. A good way to increase effectiveness of land conservation is collaboration between the agencies and private landowners that either use federal or adjacent lands. Collaborating with different landowners across ownership boundaries can lead to positive effects from conservation on adjacent lands.

Communication

An important aspect of good collaboration is good and effective communication. Communication is a prerequisite for the development of conservation. People have to be able to hold an objective and civil discussion and be able to listen to opposing viewpoints. In the past the atmosphere between people with differing views had often been hostile and a lack of communication had led to the failing of projects. A facilitator had been brought into the Swan Valley who had helped with improving the meetings to be more civil. People were able to overcome their difficulties and now a good communication atmosphere can be found in the study area. An important aspect of communication is that people do not blame each other for the things that went wrong but instead work together to make things work better.

Interviewee M said about importance of effective communication for achieving conservation goals:

“You know, there are many many goals you might have out there that you want to achieve, but you can’t do anything if you don’t work together, talk to each other, and collaborate.”

Consensus and Compromising

Coming to a consensus is a major part of successful conservation approaches. The aim is to include as many people as possible in the process of finding consensus. An increasing amount of consensus type of conservation is being practiced in the study area, which contributed to conservation being successful there. The so-called 80/20 rule, which is being applied by the Blackfoot Challenge to come to decisions, was emphasized by a large number of respondents. Now it is often relatively easy to come to a consensus for the remaining 20 percent or at least have a factual discussion about it. The percentage of issues people agree on tends to increase if they work together over a longer time span. Sometimes conflicts between different interest groups develop but different groups can co-exist and be successful at the same time and that the agencies are showing people that this co-existence is possible. People are increasingly willing to set their own agenda aside and listen to the opposing viewpoint. *Interviewee F* described the rule with the words:

“But he came up with a term called 80/20rule. And it’s worth writing down, ‘cause it’s a.... So in generally, you come to the table like that. And we can all... you and I can sit and talk politics whatever else we wanna talk about today and I bet you, 70, 80 percent of the time, yeah, maybe that part I don’t like but yeah... we agree on. And that’s what the Challenge does. You know, try to reinvent, we don’t try to reinvent every stuff, we try to work on things we all can come to the table and talk about. Now, what do we do about the 20 percent? Well, it takes years to build trust and credibility to get the sum of the issue. It could be water

rights, it could be wolves, it could be bears, it could be mining, it could be all kinds of issues. But we don't get hung up on that."

Conservation and Economy

The Blackfoot and Swan Valleys are part of a working landscape on which humans live and make a living. It is crucial to the success of conservation in the area that projects working towards conservation and projects aiming to improve the economic conditions in the area collaborate to find a way conserve the area and at the same time allow people to make a living of the land. Finding a compromise between using the land economically on a sustainable basis while protecting the land is a key part of successful conservation. *Interviewee C* described the coexistence of conservation approaches with various economic activities that utilize the land with the following words:

"[...] this is an area where you know people live and work. People work in the woods, people... you know we still have loggers here. We have foresters here. We have all sorts of people that make their living in the woods here. We have outfitters, and guides and things like that. And... and so you know the big challenge but part of the reason that makes us successful is that this is a place where you know it's more of a working landscape but we still you know provide important habitat for grizzly bears and Canada lynx, you know. Fisheries, important fisheries with endangered Bull Trout. And you know, important places for the... that still have West Slope Cutthroat Trout. So you know I think it's a combination of all of those things. The natural resources and amenities that we have here, the fact that people really care about this place. It's unique, it's intact,

it's still a working landscape and you know we're trying to bring everybody to the table to try to figure out the best way to move forward, that you know, works best out, in a way that's you know ecologically sustainable you know, considering local economies and you know, what's socially acceptable to do”.

Examples for projects that currently combine economic development with environmental protection include ecotourism projects or educational projects. While bringing in tourists who pay for their stay brings in money, tourism can be practiced in a sustainable way and that do not harm the ecosystem. Further, tourism has the option to educate tourists about conservation approaches. Educational programs, for example through Northwest Connections, bring in students who are being educated and help spread knowledge about conservation. Their tuition brings money into the study area, finances some of the conservation programs, and can be seen as an economic factor.

Discussion

An analysis of the interviews has shown that collaboration has been named repeatedly as a major contributor to successful conservation. Interviewees stated that people getting together as well as community efforts were major factors for successful conservation in the area. *Interviewee M* said:

“Well, in general, you know, why conservation would be successful and why it is here, is its relationship that you have with people. I mean if you can't work with the people that live here, the people that govern here, the organizations, the agencies, the residents, the visitors. If you can't have good relationships with people you can't accomplish anything.”

Major aspects of collaboration that stood out in the interviews were collaboration within the local community and collaboration with and among agencies. Good and effective communication as well as a civil atmosphere, compromising, and finding consensus were named as important aspects of effective collaboration. Collaborating between conservation approaches and economical approaches was another major aspect of making conservation approaches successful. Particularly the involvement of local communities agrees with the study published by Andrade and Rhodes (2012).

The analysis of the interviews has shown that a strong importance lies on the involvement of key individuals in the decision-making process. This finding agrees with Schuett et al. (2011) who found that the public wants to be involved in decisions regarding conservation. Schuett et al. (2011) further pointed out that a good exchange of information and good interpersonal communication is of major importance. This agrees with the results of my study, which has identified communication as a major point that contributes to good collaboration. Andrade and Rhodes (2012) found that community participation in the management of protected areas is of high importance to success. While the authors' statement is specifically directed at protected areas and this study looks more in general at a larger area with land with different protection statuses, one can still see a general agreement between the two studies. The good collaboration between the different organizations can be seen as similar to the stakeholder networks Kark et al. (2015) describe.

The fact that the large majority of the interviewees is to some degree working together and are likely to discuss conservation issues could have influenced the similar responses to the questions about contributors to successful conservation approaches. Interviewing people who are

not directly involved in conservation work in the area could potentially bring out other important factors of collaborative conservation work.

CHAPTER 9: DISCUSSION

Game Theory

History

Conservation agencies like the Blackfoot Challenge, Northwest Connections, the Swan Ecosystem Center, and Trout Unlimited have been named repeatedly by interviewees to have played a major role in the conservation history of the area and thus are major players in the game of conservation. Their strategies have major influences on the game of conservation and the players also influence other individuals to get involved and become players in the game of conservation. Over time, these major players in the game of conservation have changed. While initially the Swan Citizens' Ad Hoc Committee was a major player in conservation in the Swan Valley, the Swan Ecosystem Center and Northwest Connections became increasingly important players that eventually merged into one player, Swan Valley Connections. Over time, more organizations have gotten involved in the game of conservation and organizations are increasingly collaborating. Several conservation organizations also have developed from others, like the Swan Ecosystem Center from the Swan Citizen's Ad Hoc Committee, and are thus strongly related.

The number of individual citizens involved in the game of conservation has also increased since the beginning of the conservation movement, which means an increase in the total number of players involved in the game of conservation in the study area. The players have made the game more open so that it is easy for new players to join and contribute. It also makes it easier for players already involved to suggest new conservation strategies to be applied in the game of

conservation. Through the larger number of players more knowledge and resources are brought into the game, which opens up additional strategies.

Numerous interviewees emphasized the protection of the Plum Creek Timber lands through the Montana Legacy Project. Numerous players were involved in the effort to protect these lands. Working towards the protection of these lands can be viewed as a game within the game of conservation.

Comparing the historical development of conservation in the Blackfoot and Swan Valleys with the differentiation between non-cooperative and cooperative solutions in game theory, it stands out that in the early beginning of the conservation movement no or only little cooperation among the different players occurred. Numerous interviewees described that no communication was occurring and that no one listened to another's ideas or recommendations. In this time period the main groups of players would be the environmental agencies and their supporters on the one hand and the ranchers and loggers on the other hand. No or only minor cooperation occurred between these players. Interviewees described that no communication was occurring. Within the broader group of conservation supporters the interviews indicated some but limited cooperation at the time. The players in the game were operating relatively isolated. The situation resembled the description of the non-cooperative solution given in Graboś (2005) and Swedberg and Augier (2003). *Interviewee K* described the situation with the words:

“The tension then moved from loggers versus environmentalists to conservationists versus developers. So these are our struggles and they continue on. But every time you get together and listen and talk with people, you learn from one another. At least become more civil and more active.”

Over the time the cooperation within the group of conservation supporters seemed to increase. The Blackfoot Challenge is a major example for this increase in cooperation between players. A broad range of local residents is represented in the agency. Another example could be the Swan Ecosystem Center and Northwest Connections, which started as relatively individual players that developed a strong collaboration and cooperation and eventually merged into one agency in 2016.

One can argue that the rule of the game of conservation was changed through the successful work of the conservation organizations, particularly of the Blackfoot Challenge. While initially the players had interacted little and to a certain degree the game had resembled the non-cooperative game theory, now interaction between the players has changed significantly. Conservation organizations like the Blackfoot Challenge operate as umbrella organizations bringing multiple players together. Success is no longer expected from individualistic behavior but from good cooperation between the players. The rules of the game have also changed in the sense that initially the players with the largest influence had been outsiders while now they are predominantly locals.

Through success and reputation players like the Blackfoot Challenge have also gained influence outside of the game of conservation in the study area. As the organization is asked for advice in the setting up of other conservation projects they are sharing their strategies with other regions and contributing to the game of conservation in these regions.

One can say that the history of conservation in the Blackfoot and Swan Valleys with the increased collaboration and communication among the players describes a shift from a game with elements of the non-cooperative solution to a game with elements of the cooperative solution.

During the historical development the rules of the game changed so that cooperation between the players increased to the point where a network of conservation organizations had developed.

With more agencies and individuals being involved in conservation in the study area, the number of players also increased. With the increased number of players, interactions among players also increased which led to the game of conservation becoming more complex.

Conservation Practices

Education, forest management, creating recreational opportunities, managing invasive species, and improving interaction with wildlife stood out to be major conservation strategies that are being practiced in the study area.

The ways conservation practices are being carried out differ between the players but can all be seen as strategy sets contributing the game of successful conservation. While the interviewees overall defined conservation in a similar way it can be said that they are all working towards the same goal within the play. There are other players involved who are not involved in conservation work but through their influence or behavior still influence the game.

The conservation practices of dealing with invasive species and forest management can be seen as strategy sets directly working towards achieving the goal in the game of conservation. While the work in these fields might have effects on the players through things such as changes in fire patterns on their private land, the goals of the strategies are to improve the condition of the ecosystem and to work towards a more natural state of the environment. Examples for returning to a natural ecosystem are reducing the non-native species in the area and returning at least partially to occurrence of fire that is close to the way fires would occur without human influence. It however needs to be pointed out that a complete return to a natural system with regard of fire is

unlikely as fires will be stopped if they reach human settlements and that due to the decades of fire suppression, the return to a natural amount of fuel will take a long time.

Other strategies such as education, improvement in the interaction with wildlife, and developing recreational opportunities in the area are more indirectly targeted at the game of successful conservation through influencing other players in a way to positively influence their attitude towards conservation or to apply strategies on the game of conservation themselves. Improving interaction with wildlife is targeted to the players to make it easier for them to interact with wildlife and to change their attitude towards wildlife. For example, if ranchers did not have any issues with wolves or bears, they will be less likely to be against protecting those species. Improving the interaction between players and wildlife also has a positive effect on the interaction among the players since potential conflict sources are being reduced. Improving recreational opportunities that are in compliance with conservation can in so far be seen as a conservation tool as it brings money into the area and improves the economy and shows the players, in this case mainly those opposed or skeptical towards conservation, some of the positive aspects. Additionally, it helps players to stay in the area and make a living there. Education with regards to the already involved players also changes their attitude on conservation because it increases knowledge and eliminates unfounded fears or prejudices. Bringing economic opportunities into the study area also leads to an improvement in the interaction between players working for conservation and those players opposing environmental projects due to a fear of reduced economic opportunities.

Working on education of schoolchildren like through the Swan Ecosystem Center, Trout Unlimited, or through the Sculpture in the Wild's program includes the children as players in the

game. The interviewees' statements suggest that the children generally gain a favorable attitude to conservation and then influence their parents to a more favorable opinion. By educating the children about the importance of conservation, an increasing number of players involved in the game of conservation holds on opinion for conservation. While the children play different roles in the game of conservation than the decision makers, they still have influence on other players and they might become influential players in the game of conservation in the future.

Perception

The analysis focused on the interviewee's personal definition of conservation, on changes in the perception of conservation, and on the contribution of the perception of the study area as being special on the success of conservation work.

Particularly with regard to the perception of the interviewees the advantage of the qualitative approach to game theory becomes clear. The results of the study agree with Graboś's (2005) statement that the preferences of the players become obvious that way and new equilibria can be found. The qualitative approach enabled the researcher to identify the players' preferences in various issues regarding conservation approaches. Qualitative research made it possible to investigate the players' personal feelings about conservation as well as their feelings about the study area. The strong attachment of locals to the area stood out in the qualitative research but could not have been equally highlighted in a quantitative research. It can be assumed that the similar perception of what conservation is and that the study area is "special" contribute to a positive interaction among the players. Seeing the study area as something special and thus worthy to be protected can be seen as motivation of the players to become involved in the game of conservation. The emotional attachment to the area is not a part of the assumed rational

behavior under the discrete choice model, but belongs to what Golledge and Timmermans (1988) refer to as unobserved variables. The perception of the study area as special and the personal connections with the landscape is what makes the study area a place according to the definitions for place by Tuan (1975), Remph (1976 in Seamon and Sowers in Hubbard et al., 2008), and Gieryn (2000).

From the descriptions provided by the interviewees, it can be inferred that individuals who do not share a similar perception of defining conservation and perceiving the study area as special and therefore worth protecting, are the ones that the interviewees see as problems to the conservation development. The results show that the interviewees have slightly different definitions of conservation, however, the overall understanding of conservation seems to be the same. This means that the players involved in the game of conservation have the same or a similar understanding on what the game is trying to achieve. It needs to be pointed out that all interviewees are somehow involved in conservation and because there is a strong interaction between the players it is likely that they influenced each other's perception of conservation. If other players were to be interviewed more differences in this definition could be expected.

The perception of the changes in conservation in the study area seemed to have a different effect on the players. While most interviewees gave similar definitions of the perception of conservation having largely improved in recent years, some interviewees said that they would not be able to make a qualified comment on that. Others described an opposite movement of a decrease in acceptance of conservation and a beginning of reoccurrence of hostilities between different players with different viewpoints. These differences occurred between locals involved in the conservation work and locals not involved in conservation work. These differences in the

perception of the movement between the different players did not seem to have negative impacts on their interaction or the strategies they are following. The different perception of the conservation development did not have visible effects on the acceptance of players in the game of conservation as their negative perception about the acceptance of the conservation movement regarded mainly people outside of the group of players involved in conservation work. To evaluate further on this point it would be interesting to conduct interviews with locals who are not directly involved in conservation and to get their perspectives on positive and negative developments of the conservation movement.

Collaboration as a Contributor to Successful Conservation Work

Collaboration with and between agencies, the local community, and communication and compromising are major factors of successful conservation work. It stood out as important that the interaction between the players is positive and that communication among the players working in conservation in the study area is good and efficient. Interviewees pointed out that players are open to exchange ideas and that everyone can contribute their ideas and participate in discussion. If one player in conservation is not successful in working with a landowner, it is possible to ask another player to step in. The results have shown specifically the collaboration with local residents, which could through their direct or indirect influence all be considered players in the game of successful conservation.

Comparing the results derived from the interviews with Tarrant et al.'s (2010) study one can see differences in the way trust is developed between the players. While Tarrant et al. found that interviewees often draw on institutional trust, while the results of this study have shown the players have relatively little trust in institutions, especially institutions of the federal government.

Similarly to Tarrant et al.'s finding that repeated positive interactions could secure trust, the results of this study have shown the development of trust after collaboration has taken place over a longer time span. Interviewees commented that once the players had worked together for a relatively long time on the issues they agreed on, sufficient trust was built up to deal with issues on which they do not agree. The researchers found that interviewees are often willing to draw on institutional trust even without prior experience but that repeated positive interactions could secure trust, although the repeated interaction alone is not sufficient (Tarrant et al., 2010).

Interviewee F said:

“Well, it takes years to build trust and credibility to get the sum of the issue. It could be water rights, it could be wolves, it could be bears, it could be mining, it could be all kinds of issues. But we don't get hung up on that.”

This quote clearly illustrates the importance of long-term involvement in order to build up trust. It stands out that trust between the players can be built by repeated positive interaction between them. By repeatedly interacting, the players learn what strategies to expect of the other and if the interactions are positive players will be more inclined to repeat interaction with these individuals.

Collaboration with other players in the game of conservation also enables more strategies due to more know-how and more financial resources. Since the players are expected to act in a rational way following the discrete choice model as described by Golledge and Timmermans (1988), they are expected to try to maximize the outcomes. If collaborative efforts bring higher outcomes the theory assumes the players to continue operating in a collaborative way in order to achieve higher outcomes.

Federal government institutions trusted little by the players in the conservation game in the Blackfoot and Swan Valleys. Players seem to prefer working with local players with whom direct interactions are possible and with whom they can collaborate to find strategies in the conservation game.

The individual players have slightly different definitions of conservation, however, the main aspects concurred. One can assume that the players who were directly involved in conservation in the study were generally working towards the same goal. Collaboration between the involved players stood out as a major theme in the interviews. Since anyone who influences the conservation game is seen a player and should be involved in conservation collaboration. Collaboration should be open for everyone to participate. *Interviewee C* said about this:

“Overall I think the reason that conservation has been so successful here is that you know, we do more collaboration and consensus type of conservation around here where we really try to include as many people, bring as many people to the table as we can, so that you’re getting people that you know together. You’re not making these top-down decisions, you know about what’s gonna happen here without including the locals. And so you know that’s a lot about what we do”.

This quote can be seen as a good representation of the overall statements about collaboration the interviewees made.

Summary

This section links the discussion from the sections above to the study’s three research questions.

The first research question was to find out how and why the conservation movement started in the Blackfoot and Swan Valleys, and how it developed. The study has shown that the conservation movement in the two valleys started during a time of environmental degradation and during a conflict between players favoring conservation and players promoting an advancement of the local economy. Players have been working on a maximization of the utility function relatively independently. Definitions of what was to be maximized differed: while for some players what was to be maximized was the protection of the environment, for other players maximizing economic stability was the main goal. This led to the observed conflicts between the players.

The conservation movement got started by key players working towards conservation. These players started developing local conservation organizations such as the Blackfoot Challenge. Through the conservation organizations, like-minded players were collaborating on protecting the Blackfoot and Swan valleys. Members of the organizations and thus players in conservation increased over time because the organizations were open to discussion and invited locals to participate in discussions and share their opinions. Collaboration between the players became stronger and the different conservation organizations started collaborating. Players were aiming to maximize conservation and collaborative efforts were more effective than isolated conservation efforts. It contributed to the increased collaboration that all players were invited to participate and that even players who were seeking to maximize economic stability rather than environmental protection could participate. Though their participation players could see that economic stability and environmental protection are not necessarily mutually exclusive and that under the right conditions both can be achieved.

The second research question was to find out how conservation is currently being practiced in the study area. The study found that currently several key conservation organizations such as the Blackfoot Challenge and Swan Valley Connections are working on conservation in the study area. These key players are working with locals on a number of different projects. Conservation work in forest management is working towards sustainable usage of the forests and a return to a natural fire driven ecosystem. Players promote the reduction of invasive species and improving the interaction with wildlife. Individual players are choosing to put conservation easements on their land in order to prevent subdivision and development in the future. Other projects the players are involved with are promoting sustainable recreation and educating the public as well as children and university students about conservation. These strategies by the players aim at achieving a sustainable use of the land and resources of the study area. The strategies are targeted towards a long-term conservation of the area: conservation easements are a perpetual protection of the land against subdivision and development and educating children about conservation targets the next generation of decision makers to hold a favorable opinion of conservation and thus contribute to further advance conservation.

The third research question aims to find contributors to successful conservation work in the study area. The results through the interview analysis by coding found that the local history of conservation, currently practiced conservation strategies, perception by the players, and collaboration among the players contribute to successful work. While developing a successful approach to conservation is a highly complex issue that includes a large number of factors, the interview analysis has identified several contributors to successful conservation work. It can be expected that a larger number of interviewees could potentially add some additional factors. The research question of what contributes to successful conservation can be answered through game

theory, which provides a theoretical context that helps conceptualize the results. The rich conservation history of the study area provides the context in which the players act. The historic conservation work has influence on the current condition of the land, built up existing conservation structures and influenced the mindset of the players in the way of raising increased awareness for conservation. Support has developed because of repeated positive interactions with conservation organizations and openness. In current conservation strategies, players are using the already built up conservation facilities and are adding additional facilities and projects to that. Collaboration between various players, particularly with a strong involvement of the local community, was described by the large majority of the interviewees as being a major factor in conservation. It can be expected that through collaboration the strategies can be optimized. Players are expected to behave rationally and aim to achieve the maximum outcome from the discrete choice model. If working collaboratively turns out to be more efficient, players are expected to choose these strategies. Perception happens largely within the players themselves but the perception of one player can through interaction with other players influence them as well. A positive perception of conservation work and a perception of the landscape being something worth protecting are important mindsets of players to motivate them to be involved in conservation work. While the player's motivations for working in conservation can be very powerful, they cannot be directly explained in the discrete choice model since they do not follow a strictly rational behavior and are therefore according to Golledge and Timmermans (1988) included in the unobserved variables.

Throughout all identified themes collaboration stood out as the major influence on conservation success. The history of conservation has shown a development from very little collaboration among the players to a strong collaborative network. Current conservation practices

depend largely on collaboration between the players. Even individuals who are not directly involved in conservation work can be a part of the collaboration and thus contribute to the game, which shows that conservation has become significantly more inclusive. The analysis of the perception of the participants has shown that the players have very similar interpretations of conservation, which makes a successful collaboration towards a common goal possible.

It was worth applying game theory to this research because it made it possible to examine the interaction between the players in the game of conservation in a more theoretical and thus distant way. Overall the game of conservation can be described as follows:

The overall game is conservation with the goal of obtaining the most possible environmental protection for the area. The behavioral background assumes that the players are each attempting to maximize their utility function, which would be the maximized conservation. It needs to be pointed out that ‘maximum’ conservation achievements are not strictly defined and depend on the individual player’s perception of conservation and what conservation should achieve, in general as well as in specific cases in the study area.

The described factors that cannot be taken into account in decision-making using the utilitarian function for decision-making would include personal values of the individual players. These factors are expected to include how their children are to find the study area in the future, as well as economic values and personal incomes. Such variables are expected to rank differently for each individual. Further factors are expected to exist as well.

Influence of the Researcher

As this is a qualitative research project, it can be expected that the background and ideas of me as the researcher also influenced the way the project turned out. My ideas potentially influenced the way I developed the project, the way I phased the interview questions, and the way I interpreted the results. The researcher further influences the way the interviews are being conducted and the interaction between the researcher and the interviewer.

When I conducted the interviews, I was a master's student in geography at the University of Montana. In my geography degree I was focusing on GIS and cartography so that conservation was not directly the focus of my studies. However, conservation is something I had a strong personal interest in. As conservation was not the focus of my university studies, my knowledge about it increased greatly during my thesis research so that I believe that I was a lot more knowledgeable during the later interviews. This could have led to me phrasing questions differently, which could have led to slightly different responses. At the time I conducted the first interviews I had completed the first two semesters of my graduate schooling. When I conducted the last interview I was in my fourth semester of my graduate schooling.

Before conducting the interviews for my thesis research I had little experience with interviewing and qualitative research. My interviewing experience was limited to interviews I had conducted for my class Field Methods in my undergraduate studies at the University of Montana and interviews I had conducted at the University of Potsdam, Germany, where I had started by undergraduate studies. Due to these limited experiences I believe that I was quite insecure when I started conducting the interviews, however, as I was getting more experienced I also started

feeling more comfortable in doing the interviews, which I think had some effects on the flow of the interview and thus on the results.

Being from Germany and not being a native Montanan or a citizen of the U.S. can further be expected to have had some influence on the way the interviews were conducted and the way the interviewees reacted to me as an interviewer. Shah (2004:552) notes that “Face-to-face responses are not simply given to the questions, but to the researcher and themselves in that social context”. Shah discusses researchers and interviewers in intercultural contexts and says that qualitative methods are the most commonly used methods in cross-cultural studies. The author explains that in interviews researchers and interviewees are part of a knowledge building activity. This activity is influenced by knowledge of social subsystems from the individual’s culture and that both interviewer and interviewee respond to their perceived subjectivities and there are possibilities of misunderstandings, errors, and biases in interview situations which increase if interviewer and interviewee are from different cultural backgrounds. Shah (2004:553) describes the “insider/outsider” positioning of the researcher to be a major issue in cross-cultural research. The author states that social insiders have an advantage in gaining access and making meaning of the responses. However, nearness can also blind an insider-researcher to things that would be noticed by an outsider. In my research I did not initially have contacts or knowledge of the social structures that could have been helpful in finding interviewees. However, I had help in contacting sources from my advisors, particularly Rick Graetz’s connections in the study area, and by the conservation organizations and by many of the interviewees.

While the differing background between me and the interviewees could have increased errors or misunderstandings to a certain degree, I believe these errors to have been relatively

small due to the fact that German and American cultures are relatively similar and that I had lived in the U.S. for about three years when I started conducting the interviews.

Britten (1995) discusses qualitative interviews in medical research, however many of the issues the author brings up also relate to this study. For instance, Britten states that oftentimes the interviewees ask the interviewers questions and that by responding interviewers can influence the interview, while not responding can make the interviewee less willing to respond to questions. This situation also came up when I was conducting the interviews, for instance interviewees asking me about details about my research or asking me about conservation practices in Germany.

Further, differences between the way conservation is being practiced in Germany opposed to the way conservation is practiced in Western Montana could have influenced the way I conducted this research. Stoll-Kleemann (2001) describes that in Germany a strong tendency to protect threatened areas can be observed. Conservation in Germany is regulated through the Federal Nature Conservation Act and by obligations under the UN Convention on Biological Diversity and regulations by the European Union. Stoll-Kleemann (2001) found that oppositions to protected areas in Germany are mainly due to stereotypes and a lack of knowledge. Stoll-Kleemann (2001:13) articulates that “Opposition to nature conservation in Germany is rooted neither in economic conflict nor priorities over land use. It is very much a function of social identity, stereotyped images, and how particular social groups are regarded and approached”. Her description of opposition to conservation differs significantly from the reasons people in the Blackfoot and Swan Valleys oppose certain conservation approaches: While in Germany this seems to be mainly due to a lack of knowledge and not due to conflicts over land use, in my study

area the main reasons for disagreement over conservation came from differences or perceived differences between economic interests and conservation interests.

However, since I have not studied conservation in Germany in depth I believe that the differences here only had minor effects on the study. While conducting the interviews I noticed other differences between Germany and the United States, for instance I noticed that most people I talked to were more reserved about government involvement in certain environmental issues than I experienced in Germany.

Being an outsider in the sense of not living or working in the study area did not seem to negatively affect the interviewing process. To a certain degree it appeared to be an advantage as interviewees tended to give very detailed explanations, which they might not have given to an insider.

Because I gained experience in conducting interviews during the process of the research, the way interviews were conducted changed slightly during the data collection phase as I gained experience. Because the conducting and transcribing of the interviews contributed to my knowledge about conservation in the study area, the questions I asked during the interviews also changed slightly. The increased knowledge also brought up further questions that were addressed in later interviews. Me gaining knowledge about the history of conservation could have led to the participants perceiving me differently, which could have affected the way they responded to the questions I asked. As I conducted more interviews I also became more confident in asking the questions, while in the beginning I had been hesitant to ask some questions, specifically the more personal questions.

To a certain degree it can be expected that my own perceptions of conservation and the conservation history influenced the outcome of the study. If I perceived an issue to be of large importance I would ask more questions about this and thus these topics, which would lead to these topics taking up more time of the interview. If more has been said about these topics in the interviews they would also appear to be more important in the data analysis. I believe that my personal perception of conservation being something positive could to a certain degree have influenced the way the interviewees responded. However, I think this influence was not necessarily in a bad way as the interviewees saw my interest in something they are working for, which could have led to the interviewees feeling motivated to talk to me about conservation and share their personal experiences.

CHAPTER 10: CONCLUSION

This research conducted a qualitative analysis of the history of conservation in the Blackfoot and Swan Valleys, Montana. The study has produced a history of conservation in the study area, and identified major current conservation practices. The study has further analyzed contributors to successful conservation and how perception by the players contributes to the conservation movement.

Overall the study has shown the conservation history of the area to be coined by successful collaboration between key agencies including the Blackfoot Challenge, Northwest Connections, and the Swan Ecosystem Center, engaged key stakeholders and residents, as well as strong communities in which members participate in activities and developments. The history of conservation is significantly coined by an increasingly strong collaboration between the players in the game of conservation.

Current conservation practices are working towards a sustainable conservation plan in the study area, and include more direct strategies like sustainable use of forests and ranchlands but also more indirect strategies such as educational programs aiming to achieve a better understanding of conservation in the players. Strategies like educating children about conservation or putting conservation easements on the land are targeted towards the next generation of players and thus represent long-term conservation strategies.

Good collaboration among the involved players and a focus on good communication and compromising were among key factors for successful conservation. Players are expected to maximize pay-offs in conservation through engaging in more effective collaborative work. The study also found that conservation approaches need to be compliant with the local economy. A

lack of economic compliance will lead to a loss of support in the local population and further reduce funds available for conservation practices. Collaboration stood out to be a major influence on conservation success in the study area. The history of conservation has shown a development from very little collaboration among the players to a strong collaborative network and current conservation practices depend largely on collaboration. Collaboration was further identified repeatedly as a main contributor to conservation success. Perception of conservation and the study area has further influence on players although it cannot be directly explained through the discrete choice model.

The analysis of the interviews has shown that as hypothesized a strong involvement of local communities is a major contributor to successful conservation. Adaptation to the local landscape is also seen to be of importance but was emphasized less in the interviews, in which primarily collaboration stood out to influence the conservation movement.

The study had hypothesized that conservation approaches had to be strongly adapted to the local ecology. The conservation approaches in the two study cases can be described as such since they have been developed by locals and individual aspects of conservation were strongly adapted to the local landscape. Conservation easements for example were set up for every individual landowner to meet their needs and to protect their land for the future.

The assumption that conservation approaches differ significantly between the two valleys could not be confirmed from the study. It seemed that the conservation groups working in the Swan Valley had a stronger involvement in education about conservation than the conservation groups working in the Blackfoot Valley. However, educational projects were also present in the Blackfoot Valley. The Blackfoot Valley with the Blackfoot Challenge on the other hand had a

particularly strong focus on bringing various players together. However, similar efforts can also be seen in the Swan Valley. It is possible that differences exist that have not been detected here and that they could potentially be found if larger groups of people were to be interviewed.

For future research it would be recommended to conduct additional interviews, specifically with interviewees without a direct connection to conservation agencies or projects in order to get a more differentiated view of conservation in the study area. It would further be recommended to conduct a similar study in a different region in which conservation is successful and compare the outcomes.

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APPENDIX

A. Interview Questions Catalog

Questions for Landowners

Could you tell me about the history of your ranch / business / land? Since when have you / your family owned it? How long have you lived in the area?

Do you have a conservation easement on your land? Since when? Could you describe the process that led to the establishing of the conservation easement?

(If yes:) What would you say was the main reason why you decided to put a conservation easement on your land?

What was important for you with regard to the conservation easements?

(If not:) Could you imagine putting a conservation easement on your land? Under which conditions?

Are you involved in other conservation work?

What do you think of the work of the Blackfoot Challenge / Northwest Connections / other conservation agencies? Is there anything you would change?

Why do you think conservation is so successful in this area? Do you think their work is well adapted to the region?

Are you actively involved in conservation (how)? Do you attend the meetings?

Are you content with the way conservation is practiced? Are your ideas heard enough?

Can you describe how final decisions are made? Who has the largest influence?

Is there anything else you consider important with regard to conservation in the area?

What does the term conservation mean to you?

In the time you have lived here, have you noticed major environmental changes? (Climate? Pollution? Other?)

Would you define the way you use the land as sustainable?

Questions for Affiliates with Conservation Agencies

Could you describe your work?

How long have you worked for the Blackfoot Challenge / Northwest Connections?

What are the major achievements that have been made during the time you have worked here?

What changes have you experienced in your time here? (Development, policies, public perception)

Could you tell me what you know about the history of conservation work in the Blackfoot / Swan Valley?

Why do you think conservation is so successful in this area?

Where do you see potential improvements for the future?

Are you content with the way conservation is practiced? Are your ideas heard enough?

Is there anything else you consider important with regard to conservation in the area?

What does the term conservation mean to you?

Can you describe the structure of your organization for me?

Can you describe how final decisions are made? Who has the largest influence?

Would you say the way your organization approaches conservation is sustainable? Why? What could be done to improve this?

Questions for Other Locals

What changes have you experienced in your time here? (Development, policies, public perception)

What does the term conservation mean to you?

What do you think of the work of the Blackfoot Challenge / Northwest Connections / other conservation agencies? Is there anything you would change?

Why do you think conservation is so successful in this area? Do you think their work is well adapted to the region? Do you see room for improvement?

Are you actively involved in conservation (how)? Do you attend the meetings?

Are you content with the way conservation is practiced here? Do you feel involved?

Is there anything else you consider important with regard to conservation in the area?

Do you see the way land is used here as sustainable? What do you think needs to be changed to make it more sustainable?


B. IRB Approval



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Date: July 17, 2015

To: Verena Henners, Geography
Dr. Ulrich Kamp, Geography

From: Paula A. Baker, IRB Chair and Manager 

RE: IRB #181-15: "Protecting the Crown of the Continent Ecosystem. A Comparison of Conservation History in the Swan and Blackfoot Valleys, Montana"

Your IRB proposal cited above has been **approved** under the **Exempt** category of review by the Institutional Review Board in accordance with the Code of Federal Regulations, Part 46, section 101. The specific paragraph which applies to your research is:

X (b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, **unless:** (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and** (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

All consent forms used for this project must bear the dated and signed IRB stamp. Use the PDF sent with this approval notice as a "master" from which to make copies for the subjects.

University of Montana IRB policy does not require you to file an annual Continuation Report for exempt studies, as there is no expiration date on the approval. However, you are required to notify the IRB of the following:

Amendments: Any changes to the originally-approved protocol must be reviewed and approved by the IRB **before** being made (unless extremely minor). Requests must be submitted using [Form RA-110](#).

Unanticipated or Adverse Events: You are required to timely notify the IRB if any unanticipated or adverse events occur during the study, if you experience an increased risk to the participants, or if you have participants withdraw from the study or register complaints about the study. Use [Form RA-111](#).

Please contact the IRB office with any questions at (406) 243-6672 or email irb@umontana.edu.



THE UNIVERSITY OF MONTANA-MISSOULA
 Institutional Review Board (IRB)
 for the Protection of Human Subjects in Research
 CHECKLIST / APPLICATION

IRB Protocol No.:
181-15

At the University of Montana (UM), the Institutional Review Board (IRB) is the institutional review body responsible for oversight of all research activities involving human subjects outlined in the U.S. Department of Health and Human Services' Office of Human Research Protection and the National Institutes of Health, Inclusion of Children Policy Implementation.

Instructions: A separate application form must be submitted for each project. IRB proposals are approved for no longer than one year and must be continued annually (unless Exempt). Faculty and students may email the completed form as a Word document to IRB@umontana.edu or submit a hardcopy to the Office of the Vice President for Research & Creative Scholarship, University Hall 116. Student applications must be accompanied by email authorization by the supervising faculty member or a signed hard copy. *All fields must be completed. If an item does not apply to this project, write in: n/a.* Questions? Call the IRB office at 243-6672.

1. Administrative Information

Project Title: Protecting the Crown of the Continent Ecosystem. A Comparison of Conservation History in the Swan and Blackfoot Valleys, Montana	
Principal Investigator: Verena Henners	UM Position: Graduate Student
Department: Geography	Office location: Stone Hall 307C
Work Phone: n/a	Cell Phone: 406-241-0132

2. Human Subjects Protection Training (All researchers, including faculty supervisors for student projects, must have completed a self-study course on protection of human research subjects within the last three years and be able to supply the "Certificate(s) of Completion" upon request. If you need to add rows for more people, use the Additional Researchers Addendum.)

All Research Team Members (list yourself first)	PI	CO-PI	Faculty Supervisor	Research Assistant	DATE COMPLETED Human Subjects Protection Course
Name: Verena Henners Email: verena.henners@umontana.edu	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6/8/2015 ✓
Name: Ulrich Kamp Email: ulrich.kamp@umontana.edu	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7/12/2015 ✓
Name: Email:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Name: Email:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Project Funding (If federally funded, you must submit a copy of the abstract or Statement of Work.)

Is grant application currently under review at a grant funding agency? <input type="checkbox"/> Yes (If yes, cite sponsor on ICF if applicable) <input checked="" type="checkbox"/> No		Has grant proposal received approval and funding? <input checked="" type="checkbox"/> Yes (If yes, cite sponsor on ICF if applicable) <input type="checkbox"/> No		
Agency	Grant No.	Start Date	End Date	PI on grant
Cinnabar Foundation	n/a	n/a	n/a	n/a

For UM-IRB Use Only

IRB Determination:

- Not Human Subjects Research
- Approved by Exempt Review, Category # 2 w/ICF (see memo)
- Approved by Expedited Review, Category # _____ (see Note to PI)
- Full IRB Determination
- Approved (see Note to PI)
- Conditional Approval (see memo) - IRB Chair Signature/Date: _____
- Conditions Met (see Note to PI)
- Resubmit Proposal (see memo)
- Disapproved (see memo)

Note to PI: Non-exempt studies are approved for one year only. Use any attached IRB-approved forms (signed/dated) as "masters" when preparing copies. If continuing beyond the expiration date, a continuation report must be submitted. Notify the IRB if any significant changes or unanticipated events occur. When the study is completed, a closure report must be submitted. Failure to follow these directions constitutes non-compliance with UM policy.

Risk Level: Minimal

Final Approval by IRB Chair/Manager: [Signature] Date: 7/17/15 Expires: N/A

SUBJECT INFORMATION AND INFORMED CONSENT

Study Title: Protecting the Crown of the Continent Ecosystem. A Comparison of Conservation History in the Swan and Blackfoot Valleys, Montana

Sponsor: Cinnabar Foundation

Investigators:

Verena Henners
Stone Hall 307C, University of Montana, 32 Campus Drive, Missoula, MT 59812
(406) 241-0132, verena.henners@umontana.edu

Ulrich Kamp (Faculty Advisor)
Stone Hall 205, University of Montana, 32 Campus Drive, Missoula; MT 59812
(406) 243-6469, ulrich.kamp@umontana.edu

Purpose:

You are being asked to take part in a research study comparing the conservation history of the Blackfoot and Swan Valleys, Montana. The purpose of this research study is to make a comparison between the Blackfoot and Swan Valleys with regard to how conservation has developed, what contributes to successful conservation work, and how conservation is seen and approached today.

The results of this study will be used for my master thesis and will be provided to the Cinnabar Foundation. You must be 18 years or older to participate in this research.

Procedures:

You will be asked questions about local conservation work and opinion of it. You will also be asked about your and your family's history and your personal involvement and experiences with conservation work. The session will last for approximately 30 to 90 minutes and will be audio-recorded with your permission.

Risks/Discomforts:

There is no anticipated discomfort for those contributing to this study, so the risk to the participants is minimal.

Benefits:

There is no promise that you will receive any benefit from taking part in this study. Your participation may help to gain knowledge about the development of conservation and reasons for its success in this area. You may request a copy of the results of my study. Although you may not directly benefit from taking part in this study, your participation would be greatly appreciated.

Confidentiality:

Your records will be kept confidential and will not be released without your consent except as required by law. Your identity will be kept private. If the results of this study are written in a scientific journal or presented at a scientific meeting, your name will not be used.

The University of Montana IRB	
Expiration Date	<u>None</u>
Date Approved	<u>7-17-2015</u>
Chair/Admin	<u>Paul W. Boyer</u>

Your initials _____ indicate your permission to be identified by name in any publications or presentations.

If you do not want to be acknowledged by name in any publications or presentations, please initial here _____.

The data will be stored in a locked file cabinet. Your signed consent form will be stored in a cabinet separate from the data. The audiotape will be transcribed without any information that could identify you. The tape will then be erased.

Voluntary Participation/Withdrawal:

Your decision to take part in this research study is entirely voluntary.

You may refuse to take part in or you may withdraw from the study at any time without penalty or loss of benefits to which you are normally entitled. You may leave the study for any reason.

Questions:

If you have any questions about the research now or during the study, please contact me, Verena Henners, at (406) 241-0132 or by email at verena.henners@umontana.edu

If you have any questions regarding your rights as a research subject, you may contact the UM Institutional Review Board (IRB) at (406) 243-6672.

Statement of Your Consent:

I have read the above description of this research study. I have been informed of the risks and benefits involved, and all my questions have been answered to my satisfaction. Furthermore, I have been assured that any future questions I may have will also be answered by a member of the research team. I voluntarily agree to take part in this study. I understand I will receive a copy of this consent form.

Printed Name of Participant

Participant's Signature

Date

Statement of Consent for Audio Recordings:

I understand that audio recordings may be taken during the study, and I consent to being audio recorded. I consent to use of my audio in presentations related to this study. I understand that if audio recordings are used for presentations of any kind, names or other identifying information will not be associated with them. I understand that audio recordings will be destroyed following transcription, and that no identifying information will be included in the transcription.

Participant's Signature

Date

The University of Montana IRB	
Expiration Date	<u>None</u>
Date Approved	<u>7-17-2015</u>
Chair/Admin	<u>[Signature]</u>