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AN ENVIRONMENTAL HISTORY OF THE BEAR RIVER RANGE, 1860–1910

by

Bradley P. Hansen

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

History

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UTAH STATE UNIVERSITY
Logan, Utah

2013

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ABSTRACT

An Environmental History of the Bear River Range, 1860–1910

by

Bradley P. Hansen, Master of Science

Utah State University, 2013

Major Professor: Dr. Chris Conte
Department: History

The study of environmental history suggests that nature and culture change all the time, but that the *rate* and *scale* of such change can vary enormously.¹ During the late 19th and early 20th centuries, Anglo settlement in the American West transformed landscapes and ecologies, creating new and complex environmental problems. This transformation was particularly impressive in Cache Valley, Utah's Bear River Range. From 1860 to 1910, Mormon settlers overused or misused the Bear River Range's lumber, grazing forage, wild game, and water resources and introduced invasive plant and animal species throughout the area.

By the turn of the 20th century, broad overuse of natural resources caused rivers originating in the Bear River Range to decline. To address the water shortage, a small group of conservation-minded intellectuals and businessmen in Cache Valley persuaded local stockmen and farmers to support the creation of the Logan Forest Reserve in 1903.

¹ William Cronan, "The Uses of Environmental History," *Environmental History Review* 17 (Autumn 1993): 14.

From 1903–1910, forest managers and forest users attempted to restore the utility of the landscape (i.e., bring back forage and improve watershed conditions) however, they quickly discovered that the landscape had changed too much; nature would not cooperate with their human-imposed restoration timelines and desires for greater profit margins.²

Keeping in mind the impressive rate and scale of environmental decline, this thesis tells the heretofore untold environmental history of the Bear River Range from 1860 to 1910. It engages this history from an ecological and social perspective by (1) exploring how Mormon settlers altered the landscape ecology of the Bear River Range and (2) discussing the reasons why forest managers and forest users failed to quickly restore profitability to the mountain landscape from 1903-1910. As its value, a study of the Bear River Range offers an intimate case study of environmental decline and attempted restoration in the western United States, and is a reminder of how sensitive our mountain ranges really are.

(117 Pages)

² “Cache National Forest Historical Documents, 1903–1950,” located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

PUBLIC ABSTRACT

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by

Bradley P. Hansen, Master of Science

Utah State University, 2013

Major Professor: Dr. Chris Conte
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The study of environmental history suggests that nature and culture change all the time, but that the *rate* and *scale* of such change can vary enormously.³ During the late 19th and early 20th centuries, Anglo settlement in the American West transformed landscapes and ecologies, creating new and complex environmental problems. This transformation was particularly impressive in Cache Valley, Utah's Bear River Range. From 1860 to 1910, Mormon settlers overused or misused the Bear River Range's lumber, grazing forage, wild game, and water resources and introduced invasive plant and animal species throughout the area.

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⁴ “Cache National Forest Historical Documents, 1903–1950,” located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

To Janelle

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This thesis would not have happened without the help of many. Foremost, my wife, Janelle, has supported me throughout the entire process. An editor by profession, she has (ruthlessly at times) helped me improve my abilities as a writer and critical thinker. I will forever appreciate her friendship and advice. I must also recognize the help of my advisor, Chris Conte, who loves the Bear River Range probably more than me. He has encouraged me to spend time in the mountains reading the landscape. His advice to get to know the trees, the rocks of the canyons, and the paths of the streams has led me to ask important questions about change over time. To Brad Cole, Ann Buttars, Bob Parson, and the rest of the Special Collections and Archives staff at Utah State University, I owe a debt of thanks. Brad Cole provided an internship in which much of the research for this thesis was conducted. Over the past 2 years Ann Buttars has been a mentor and friend, directing me to dozens of Mormon diaries and local sources dealing with early Cache Valley history. And Bob Parson, who also sits on my committee, has been an invaluable help in tracking down unique primary sources hidden in the Archives. I would also like to thank David Rich Lewis (committee member), Norm Jones, and Phil Barlow for their encouragement and good advice along the way.

Bradley Paul Hansen

CONTENTS

	Page
ABSTRACT.....	iii
PUBLIC ABSTRACT	v
ACKNOWLEDGMENTS	viii
LIST OF FIGURES	x
CHAPTER	
1 INTRODUCTION	1
2 THE BEAR RIVER RANGE LANDSCAPE.....	10
3 MULTIPLYING AND REPLENISHING THE EARTH OR FAMILIARIZING A FOREIGN LANDSCAPE.....	20
4 A MOUNTAIN RANGE IN CRISIS	43
5 ATTEMPTED RESTORATION.....	68
6 CONCLUSION.....	95
BIBLIOGRAPHY.....	100

LIST OF FIGURES

Figure	Page
1. Map of the Bear River Range near Cache Valley, Utah.	9
2. “Franklin Butte and the Northern End of Cache Valley ca. 1877.” Camp of A.C. Peale and party, geologists with the U.S. Geological and Geographical Survey of the Territories.....	15
3. Early settlement scene in Logan Canyon, Bear River Range.	22
4. A ring hunt near Fairview, Utah, ca. 1912.....	28
5. A catch of cutthroat trout ca. 1900.....	34
6. Seth Green (left) and Albert Perry Rockwood (right).	37
7. “Aquarium” railcar designed to transport fish fry. U.S. Department of Commerce.	38
8. Native Bonneville cutthroat from Logan River Utah, 2012.	40
9. Men hauling logs into Cache Valley from Bear River Range, ca.1880.....	44
10. Approximate location of sawmill sites on the Bear River Range near Cache Valley.	46
11. “In Memory of James Smyth” Headstone near Hardware Ranch, Blacksmith Fork Canyon, 2012.	48
12. The United Order Manufacturing & Building Co.....	50
13. Sheep Camp, Logan Canyon ca. 1900.	51
14. Cattle and sheep population change in Utah, 1860–1940.....	54
15. “Total destruction of forest by fire after cutting, head of Beaver Creek, Southfork.”	63
16. Hardware Ranch in 1899 (left) and 2012 (right).	65
17. Logan River in 1900 (left) and 2012 (right).	66
18. Albert F. Potter’s route across Utah.....	82

19. “Burned spruce and fir forest, on tope of ridge on west side of Logan River Basin.”83

20. “Lake Gog, in head of Tony Lake showing Alpine Fir.”83

21. Map showing the approximate boundary of the Logan Forest Reserve, 1903..84

22. “Forester at work in Logan Canyon when night overtakes him far from his
headquarters.”87

23. Rich County, Utah. 1890s steam sawmill on divide between Rich and Cache
Counties. Owned by Nathaniel W. Hodges.89

CHAPTER 1

INTRODUCTION

The history of the Bear River Range is a tale of environmental decline. From 1860 to 1910 Cache Valley's Mormon settlers overused or misused the natural resources found on the Bear River Range and set in motion changes to landscape and ecology that quickly swung out of control. The rate and scale of the changes surprised the settlers, who did not fully understand the long-term consequences of their actions.

By the turn of the 20th century, roughly 40 years after the first Mormon settlers entered Cache Valley, the Bear River Range was in an environmental crisis. Unregulated logging and grazing coupled with drought resulted in serious watershed decline. Logan River, the largest supplier of water to Cache Valley, became polluted and ran low. In 1902 a small group of local conservation-minded intellectuals and businessmen convinced Cache Valley farmers and stockmen to petition the federal government to set aside much of the Bear River Range as a forest reserve. Their actions resulted in the establishment of the Logan Forest Reserve on May 29, 1903. During the seven years (1903-1910) following its creation, foresters managing the reserve's damaged lands (and forest users) simply reduced the number of livestock allowed on the reserve in an attempt to bring back forage and improve watershed conditions. However, despite these changes, in 1910 the Logan River and other rivers coming from the Bear River Range were still drying up in late summer. Ultimately, both forest managers and users realized that the mountain landscape had changed too much for a quick fix.

This thesis tells the heretofore-untold environmental history of the Bear River Range. It engages this history from an ecological and social perspective. Its main concerns are (1) documenting the ways Mormon settlers altered the landscape and ecology of the Bear River Range during the years of settlement from around 1860 to 1900, and (2) describing how forest managers attempted to restore the utility, or profitability, of the range during the seven years following the creation of the Logan Forest Reserve (1903–1910). As its value, this thesis offers an intimate case study of environmental decline and attempted restoration in one of the American West’s most heavily used mountain ranges. To best tell this history, this thesis crosses disciplines, using the research and tools of ecologists, range scientists, geographic information systems (GIS), and, of course, historians.

Review of Literature

Donald Worster has argued that the origin of environmental degradation in the American West can be found in the capitalist worldviews and modes of productions employed by settlers. Degradation in Utah (of which Cache Valley was and is a part) is no exception. Worster argues in *Rivers of Empire* that the Mormons who settled Utah employed their religion in the work of accumulating capital. He suggests that the Mormon church’s desire to have dominion over the earth pitted it in a “war against nature” and required local members to become an army of “obedient soldiers” for the church, whose goal was to pull wealth from the earth.¹

¹ Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon, 1985), 75, 80.

Dan Flores, in “Zion in Eden: Phases of Environmental History in Utah,” built upon Worster’s argument by proposing that after Brigham Young’s death in 1877, Utah Mormons began a process of “Americanization” that ended in 1896 with Utah’s statehood and an almost complete incorporation into the laissez-faire American mainstream. Flores contends that Utah Mormons believed it was their duty as “stewards of the earth” to change and alter the natural world to make it produce more of the things they found most useful. Flores argues, however, that Mormon settlers were bewildered by the strangeness of the Mountain West. Accustomed to the conditions and natural processes of the Eastern United States, they lacked scientific knowledge of plant succession (or of the relationship between vegetation, water, and slope) in the West. As more people arrived in Utah’s Wasatch Front and logging and herd sizes increased, Mormons failed to develop an adequate land ethic. Instead of making the desert “blossom as a rose,” the stated objective of the Mormon settlers, they transformed the landscape into one overrun with pigweed and juniper.²

Thomas G. Alexander, a Utah and environmental historian, agrees with Worster and Flores that Mormon incorporation into the larger U.S. economy contributed to environmental degradation in Utah. However, he disagrees with Flores’s assertion that Mormon settlers were bewildered, or ignorant of their environment. He argues that for their day Mormon settlers had an active understanding of plant succession, ecology, and the effects of overgrazing and logging on watersheds. Alexander contends that the settlers fully expected to use science and technology to refashion the Arid West into a place fit for Christ’s second coming and an earthly home like the familiar humid region

² Dan L. Flores, “Zion in Eden: Phases of the Environmental History of Utah,” *Environmental Review* 7, no. 4 (December 1983): 330-332.

they had come from.³ In addition to understanding the effects of their actions, Alexander argues that church leaders, especially Joseph Smith (before his death in June 1844) and Brigham Young, promoted a sustainable land ethic. This ethic, or “stewardship,” argued for both protection of native species and introduction of beneficial non-native species to “multiply and replenish the earth.”⁴ However, Mormon settlers’ introduction of exotic plants and animals often resulted in dire consequences for native species. Alexander argues that damage done to Utah’s mountains and valleys did not come from evil people bent on destroying the environment, but rather from well-meaning citizens pursuing markets under a secularized entrepreneurial tradition. He suggests that the Mormon settlers who directly transformed Utah’s mountain landscapes either forgot or ignored their church’s teachings of land stewardship. He states, “they valued jobs, and wealth more than the sanctity of life, stewardship, and reverence for the earth.”⁵

The idea that ecologically uninformed people mismanaged mountain landscapes in the American West is the theme of ecologist Nancy Langton’s *Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West*. Unlike Alexander, Langton argues that settlers’ as well as forest managers’ (who came later) lack of understanding of mountain ecologies not only contributed to environmental decline in western forests, but hastened it. In *Forest Dreams, Forest Nightmares* Langton demonstrates that forests are complex and that the people who used and attempted to manage them in the past did so with faulty and ignorant assumptions about the way ecosystems function. Her study documents how early Anglo settlers in the Blue

³ Thomas G. Alexander, “Stewardship and Enterprise: The LDS Church and the Wasatch Oasis Environment, 1847–1930,” *Western Historical Quarterly* 25, no. 3 (October 1994): 344.

⁴ *Ibid.*, 345.

⁵ *Ibid.*, 362.

Mountains of the Pacific Northwest tried to simplify complex ecosystems (in one case, old-growth forests) with the hope of making them produce more of the commodities people wanted and fewer of the commodities people did not want. As in Utah, settlers in Oregon made their livings using forest resources and, when resources became scarce, they tried to manipulate forests to produce more. Langston points out that in their attempts to use and later manage complex forests, settlers and foresters set in motion ecological change that quickly swung out of their control.⁶ She argues that many of the new environmental problems that Forest Service employees and forest users encountered after 1900 resulted from people trying to force the land to fit an idealized vision of “wild nature, of a productive regulated forest, of a grassland utilized to its full biological potential.”⁷ Thus, Langston contrasts the tragic, and at times ironic, history of how people destroyed forests in the past with the often frustrating process of restoring forest health today. Langston builds on Worster, Flores, and Alexander by arguing that the only way people will ever successfully manage forests in a sustainable way is to incorporate a much richer historical understanding of the forest itself.⁸

A more complete history of a forest, or mountain range, must include the narrative of those who sought to repair and restore nature. In his article, “Repairing Mountains: Restoration, Ecology, and Wilderness in Twentieth-century Utah,” Marcus Hall argues that the narrative of environmental decline in the American West is only part of the story. He suggests that understanding the efforts of forest managers to repair damaged landscapes is just as important as understanding how the landscapes were

⁶ Nancy Langston, *Forest Dreams, Forest Nightmares: the Paradox of Old Growth in the Inland West* (Seattle: University of Washington Press, 1995), 8.

⁷ *Ibid.*, 306.

⁸ *Ibid.*, ix.

damaged in the first place. In his study of the Manti, Utah, Forest Reserve and greater Wasatch Plateau, Hall points out that foresters managing newly created forest reserves initially restored lands according to Anglo expectations. They attempted to bring back the utility of the forest rather than its biodiversity. Although foresters reduced the number of cattle and sheep allowed on the range, their efforts did little to restore the health of the landscape.⁹ Hall states that in the end, foresters were forced to re-evaluate their role as restorers and accept that in many places the land was simply too degraded to ever return to pre-settlement conditions. These places could be *preserved* and per chance *rehabilitated*, but never *restored*.¹⁰

Overall, the history of the Bear River Range fits well within the current historiography of environmental decline in Utah and the broader western United States. As such, this thesis supports Worster, Flores, and Alexander's shared argument that the capitalist worldviews and modes of production employed by Mormon settlers contributed to environmental degradation and ecological change in Utah. However, this thesis finds issue with Alexander's claim that Mormon settlers understood broad landscape ecology, plant succession, and the effects of overgrazing and logging on sensitive watersheds. This thesis argues that Mormon settlers were in fact "bewildered," as Flores has contended, by Utah's semi-arid climate and mountain environment. And finally, this thesis agrees with Langston and Hall that foresters' efforts to restore mountain landscapes were made with good intentions, but overwhelmingly failed to address the concerns created by resource overuse and a changing landscape.

⁹ Marcus Hall, "Repairing Mountains: Restoration, Ecology, and Wilderness in Twentieth-Century Utah," *Environmental History* 6 (October 2001): 585.

¹⁰ *Ibid.*, 599, 604.

Outline of Chapters

Chapter 2 outlines the geographic scope of the Bear River Range and describes its landscape ecology prior to Mormon settlement in 1860. To understand the substantial changes that took place, the reader must understand what the range looked like and how, in broad terms, the range functioned before Anglos arrived in the area. Using accounts by Shoshones, mountain men, and Mormon pioneers, as well as modern scientific research on pre-settlement vegetation in Cache Valley and the larger Great Basin, I provide an overview of the pre-1860 conditions of the Bear River Range.

Chapter 3 explores Mormon settlers' efforts to familiarize, or "multiply and replenish" Cache Valley. I discuss how the introduction of domesticated animals, exotic flora and fauna, and non-native fishes, combined with attempts to rid Cache Valley and the Bear River Range of all predators, disrupted important processes of plant succession and natural predation among native plant and animal species. Citing range studies, I show how the foothills of the Bear River Range transitioned from a fertile landscape dominated by native bunchgrasses to a dry desert landscape overrun by cheatgrass and sagebrush. I also examine how the removal and contemporary return of predators to the range raises important questions about the role these animals play in the larger Bear River Range environment. And finally, I briefly describe early pioneer fish stocking efforts in the waters of the Bear River Range, showing how the introduction of rainbow trout and brown trout negatively affected native Bonneville cutthroat trout in the Logan River and Blacksmith Fork River.

Chapter 4 gives a brief history of the rise of large-scale logging and grazing in the Bear River Range, paying particular attention to how forests and rangelands were

overused or misused by Mormon settlers. I document that years of drought in the 1890s, combined with the effects of intense logging and overgrazing, severely damaged the Bear River Range watershed, causing the Logan River, the largest river drainage in the area, to nearly dry up around 1900. Chapter 4 also highlights the decline of wild game on the Bear River Range. Citing Utah State Fish and Game Reports from the late 1890s, I document how unregulated hunting caused the extirpation or near extirpation of big game herds historically found in the area. Finally, I briefly discuss the creation of the Sportsman's Club of Cache Valley, the first wildlife conservation group in Cache Valley that attempted (albeit unsuccessfully) to save declining big game populations.

Chapter 5 discusses the local debate surrounding the creation of the Logan Forest Reserve, Albert F. Potter's survey of the Bear River Range, and foresters' efforts to restore the Bear River Range between 1903 and 1910. I contend that a majority of Mormon settlers in Cache Valley understood little about how mountain landscapes functioned and were generally unaware of the relationship between deforestation, overgrazing, and watershed health. I argue that only a small group of conservation-minded intellectuals and businessmen in Cache Valley fully realized the importance of regulations and sustainable land management practices. Chapter 5 discusses the reasons why, following the creation of the Logan Forest Reserve, forest managers failed to meet the goal of quickly restoring profitability to the Bear River Range. Using correspondence between stockowners and forest managers, I show that in many instances forest users, (stockmen in particular) failed to obey grazing regulations and actively sought to beat "the system." Ultimately I argue that forest managers' prescribed treatment of simply

reducing the number of livestock allowed on the reserve was not sufficient to address the complex problems created by decades of overuse and misuse.

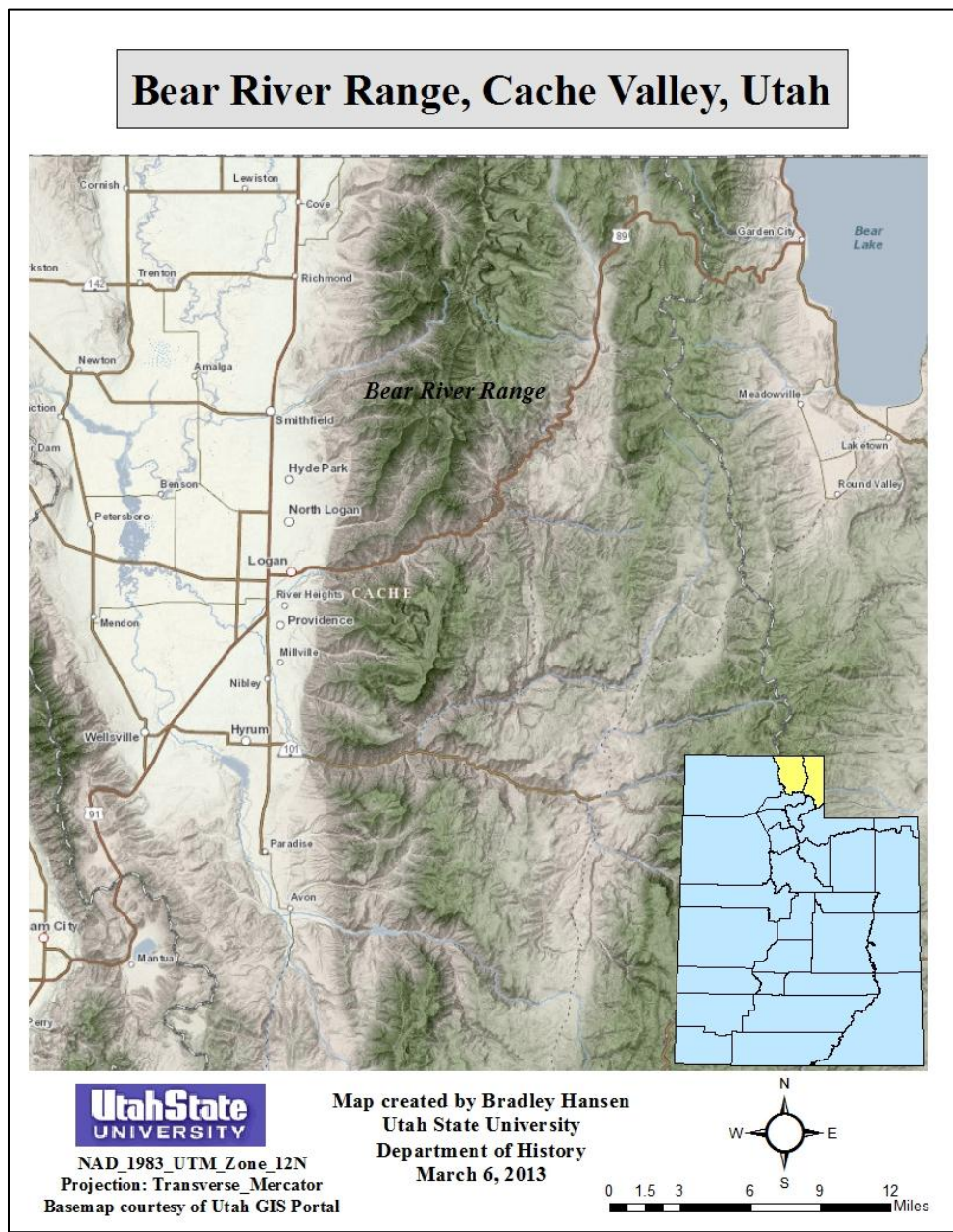


Figure 1. Map of the Bear River Range near Cache Valley, Utah. Map created by author.

CHAPTER 2

THE BEAR RIVER RANGE LANDSCAPE

The Bear River Range is located in northeastern Utah and southeastern Idaho. It is the northernmost spur of the Wasatch Mountains, which are part of the larger Rocky Mountains. The Bear River Range stretches from the southern end of Cache Valley, Utah, to Soda Springs, Idaho. This study is primarily concerned with the Utah portion of the range, a section of roughly 565,120 acres which covers the entire Utah section of Cache Valley.¹ Range topography varies from steep outcroppings and deep, narrow canyons (Logan Canyon being the most spectacular) to alpine meadows and rolling hills. The mountains are primarily made of limestone and dolomite and were created by the movements of the East Cache Fault, which runs along the eastern base of the Bear River Range.² With elevations ranging from 4,675 feet at the mouth of Logan Canyon to 9,979 feet at its highest point (Mt. Naomi), the range comprises several life zones. Today its highest places resemble alpine tundra featuring short sedges and grasses. Below the tundra in the Hudsonian and Canadian Zones, limber pine, Engelmann spruce, lodgepole pine, and Douglas fir are found among interspersed grassy meadows. The lower canyons and foothills of the Transition Zone support Utah juniper, cottonwood, sagebrush, and

¹ Bear River Watershed Information System, “Middle Bear” <http://bearriverinfo.org/htm/bear-river-watershed-description/middle-bear-logan-english> (accessed November 20, 2012).

² Karl S. Barker and Steven W. Barker, “Interim Geologic Map of the Wellsville Quadrangle, Cache County, Utah,” Utah Geological Survey, April 1993. http://geology.utah.gov/maps/geomap/7_5/pdf/cr-93-2.pdf. (accessed March 18, 2013); United States Geologic Survey, Groundwater Information, “Basin and Range and Bear River Range Carbonate Aquifers” <http://water.usgs.gov/ogw/karst/aquifers/basinrange/index> (accessed November 18, 2012).

limited native and non-native grasses.³ As part of the larger Great Basin, the range's climate is representative of semi-arid, high-desert mountains.⁴ Moisture comes predominantly from the west in the form of winter precipitation, though short summer thunderstorms are not uncommon. Average annual precipitation varies from between 17 to 59 inches, of which the majority arrives as snow in the higher elevations during the period between November and May.⁵ The mountain peaks remain covered in snow until early summer when warmer temperatures begin melting the snowpack. Melting occurs throughout the remaining summer months until the snowpack is gone. The range is drained by several rivers (Logan and Blacksmith Fork are the largest) which irrigate semi-arid Cache Valley. Temperatures can vary dramatically in the mountains depending on seasons reaching upwards of 100°F in the summer and below 0°F in the winter. The second coldest temperature ever recorded in the continental United States, -69°F, occurred in the Bear River Range near the area of Peter Sinks in Logan Canyon.⁶

Landscape Ecology

One of the fundamental tenants of ecological philosophy is that all nature is basically dynamic, that all living organisms supported and maintained at any given place or time do not and cannot remain wholly static.⁷ Because landscapes are large compositions of living things, they, too, are dynamic. When it comes to studying ecology and landscape there is no such thing as unchanged, pristine, or perfect. Thus, to say the

³ Flores, "Zion in Eden," 327-328.

⁴ Glen F. Gantz and Frederick F. Knowlton, "Activity Areas of Coyotes in the Bear River Mountains of Utah and Idaho," *The Journal of Wildlife Management* 69 (October 2005): 1652-1659.

⁵ Bear River Watershed Information System, "Middle Bear" <http://bearriverinfo.org/htm/bear-river-watershed-description/middle-bear-logan-english> (accessed November 20, 2012).

⁶ Ibid.

⁷ Walter P. Cottam, "The Impact of Man on the Flora of the Bonneville Basin" (Salt Lake City: University of Utah, 1961), 3.

Bear River Range was pristine before 1860 (and not so afterwards) is untrue; the range was changing, evolving, and transforming naturally before Mormon settlers grazed livestock and cut down trees. William Cronon points out that when studying the past we can make the mistake of committing ourselves to a “fundamentally dualistic vision: nature is assumed to be stable, balanced, homeostatic, self-healing, purifying, and benign, while modern humanity, in contrast, is assumed to be environmentally unstable, unbalanced, disequilibrating, self-wounding, corrupting, and malign.”⁸ Cronon suggests that if we are not careful, we can get caught in this dualistic worldview, and forget that the environment was just as dynamic, changing, and unpredictable then as it is now. The purpose of this thesis is not to create a “before and after” image of the Bear River Range, but rather to explore environmental change in a particular historical moment, showing how human relationships with landscapes have changed over time and in some cases precipitated substantial, even catastrophic change.

Pre-Settlement Bear River Range

Historians and ecologists have made several general observations about the pre-settlement condition of the Bear River Range. Foremost, the valleys and foothills of the range were covered with thick grass. Long before Mormon settlers came to Cache Valley, Shoshone Indians had mixed nutritious native grass seeds with pulverized meat or berries to form cakes, which they stored for winter consumption.⁹ During the 1820s—30s mountain men came to Cache Valley in search of furs and noted the abundance of

⁸ William Cronon, “The Uses of Environmental History,” *Environmental History Review* 17 (Autumn 1993): 10.

⁹ John W. Heaton, “No Place to Pitch Their Teepees”: Shoshone Adaptation to Mormon Settlers in Cache Valley, 1855-70,” *Utah Historical Quarterly* 63, no. 2 (Spring 1995): 163.

grass. Peter Skene Ogden, for example, wrote of prolific meadows in Cache Valley that supported herds of buffalo near present day Paradise, Utah.¹⁰ During the 1830s William Angus Ferris of the American Fur Company became the first white man in recorded history to traverse Logan Canyon from Bear Lake.¹¹ He wrote that the area was “abundantly fertile, producing everywhere most excellent grass.”¹² By the 1840s both Mormon settlers and the United States Army had an interest in Cache Valley. In 1847 Brigham Young sent a group of men to explore the area. Their report confirmed abundant forage and grazing possibilities.¹³ Two years later Captain Howard Stansbury surveyed Cache Valley as a possible site for an army post. In his report, Stansbury described the area as being covered in a “profusion of rich grass” and the mountains “abounding in timber.” He wrote that the valley would be one of the most eligible spots in the whole country for wintering stock.¹⁴ When Mormon settlers arrived in Cache Valley in large numbers during the early 1860s, they found grass “taller than a man” in places, and in such abundance that livestock were grazed in the foothills all summer and fed on cured native grasses throughout the winter.¹⁵

¹⁰ Joel E. Ricks, *The Beginnings of Settlement in Cache Valley* (Logan, Utah: Faculty Association, Utah State Agricultural College, 1953), 7.

¹¹ For an in-depth discussion of fur trapping in Cache Valley see M.R. Hovey, “Cache Valley Before the Settlements,” Coll Mss 43 Box 1 Book 4, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan; Rex J. Haddock, “A History of Cache Valley, Utah, From the Fur Period to the Year 1869” (Master’s thesis, Utah State Agricultural College, 1953)

¹² Warren Angus Ferris, *Life in the Rocky Mountains, 1830-1835*, ed. Leroy R. Hafen (Denver: The Old West Publishing Company, 1983), 123.

¹³ Will Bagley, *The Pioneer Camp of the Saints* (Logan, Utah: Utah State University Press, 2001), 256.

¹⁴ Howard Stansbury, *Exploration of the Valley of the Great Salt Lake* (Washington, D.C.: Smithsonian Institution Press, 1852, reprinted, 1988), 94.

¹⁵ Joel Ricks, “Some Recollections Relating to the Early Pioneer Life of Logan City and Cache County,” File MSS 389, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

The specific types and dispersion of native grasses that grew on the foothills of the Bear River Range are difficult to know for certain. As will be discussed in the following chapters, much of the native forage on the Bear River Range disappeared as a result of intense livestock grazing during the settlement process. By the time settlers (and later forest managers) began worrying about the availability of native grasses, exotic grasses and other invasive vegetative species such as sagebrush and juniper had taken over.

Modern ecological studies have shown which types of native grasses likely grew in the area. An important study by range scientists A.C. Hull and Mary Kay Hull on pre-settlement vegetation in Cache Valley suggests that before the arrival of Mormon settlers in the 1860s, the foothills of the Bear River Range were dominated by various bunchgrasses. In 1972 Hull and Hull located a small number of isolated areas that managed to escape heavy grazing and recorded the presence and abundance of native grasses. They found that bluebunch wheatgrass, although very limited in dispersion, was the most abundant species, followed by streambank wheatgrass, basin wildrye, Junegrass, Sandberg bluegrass, western wheatgrass, and various other bluegrasses. On higher elevation ridge tops and sandy soils, they found Indian ricegrass, needleandthread, and sand dropseed. In addition to grasses, highly palatable forbs (like arrowleaf balsamroot) were also present on some isolated northern facing exposures, suggesting that in pre-settlement days, forbs may have supplemented grasses as an important part of the forage landscape. Hull and Hull suggest that the grass that Mormon settlers called “big bunchgrass,” (that grew to the height of a man) was likely a combination of reed

canarygrass and wild rye.¹⁶ They argue that sagebrush was not a dominant range plant in pre-settlement times.



Figure 2. “Franklin Butte and the Northern End of Cache Valley ca. 1877.” Notice the absence of trees and sagebrush. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Forests dominated the canyons and higher elevations of the Bear River Range. To date no exhaustive inventory of pre-settlement tree types on the Bear River Range has been completed. However, we know that Mormon settlers found rich stands of lumber in the mountains because (as will be discussed in Chapter 3) they cut most of it down. The earliest documentation of tree types on the Bear River Range comes from Jim Bridger who, while in Cache Valley in 1825, noted seeing large stands of “Oak timber, sugar

¹⁶ A.C. Hull, Jr. and Mary Kay Hull, “Pre-settlement Vegetation of Cache Valley, Utah and Idaho,” *Journal of Range Management* 27 (January 1974): 27-29.

trees [most likely maple], Cottonwood, and Pines.”¹⁷ In 1849 Captain Stansbury described seeing “fine timber in quantities sufficient for fuel and building purposes” and noted specifically the presence of cottonwood and maple.¹⁸ In 1855 government surveyor David H. Burr traveled through Box Elder (Sardine) Canyon into Cache Valley. He noted that stands of pine and maple had already been cut by settlers. Still present in the canyon, however, were box elders, willows, service berries, wild currant, and many other flowering plants. Burr noted in his report that the higher reaches of the Bear River Range were covered in a “dark pine.”¹⁹ Peter Maughn, leader of the first Mormon settlers in Cache Valley, noted in 1859 the availability of “plenty of timber, consisting of pine, maple, and quaken (*sic*) asp.”²⁰

In 1964 Utah State University forestry student Douglass Bird made observations about the types of trees Mormon settlers logged during the Cache Valley lumber boom of the 1870s and 1880s. His research offers insight into the vegetation communities of pre- and early settlement Cache Valley. He suggests that present in foothills were populations of Utah juniper. Utah juniper, because of its tolerance of drought, was available in much drier areas, and was used by settlers to build fences and for fuel. In the higher elevations (4,500–7,500 feet) thick stands of Douglas fir dominated. This species was most abundant when the pioneers arrived and, because of its accessibility, was heavily logged.

¹⁷ Douglass Bird, “A History of Timber Resource Use in the Development of Cache Valley, Utah” (Master’s thesis, Utah State University, 1964), 5.

¹⁸ Stansbury, *Exploration of the Valley of the Great Salt Lake*, 94.

¹⁹ David H. Burr, “Annual Report of Surveyor General of Utah September 30, 1856.” House Exec. Doc. 1 (34-3) 1856 Serial 893 pp. 542-549.

²⁰ Bird, “A History of Timber Resource Use,” 5.

Still higher, was quaking aspen, Engelmann spruce, alpine fir, lodgepole pine, and limber pine.²¹

The rich timber stands in the range's higher elevations and the lush foothill grasslands provided forage and habitat for a healthy population of big game and predators. When Mormon settlers arrived in Cache Valley they encountered Shoshone Indians hunting populations of elk, deer, antelope, and mountain sheep.²² Historian John W. Heaton has noted that during the spring and summer Shoshone migrated throughout northern Utah gathering seeds, berries, and roots, and hunting small and large game.²³ Historically, buffalo also grazed the foothills and valleys of the Bear River Range, but likely in small numbers. Peter Skene Ogden reportedly saw buffalo in Cache Valley about 1825. It is possible he encountered a remnant herd that survived a severe winter only a few years earlier. Shoshone chief Sagwich told early Mormon settlers of a winter during the 1820s when heavy snows came to the Bear River Range and surrounding valleys. The snow piled up in Cache Valley to the depth of 14 feet, which forced the Shoshones to leave and winter near the banks of the Great Salt Lake. When the snows melted the following spring, the Indians returned to Cache Valley to hunt but found that only seven buffalo had survived the winter.²⁴ By the time trapper Warren Angus Ferris visited the Bear River Range during the summer of 1830, buffalo were not among the animals he saw.²⁵

²¹ Ibid., 2-4.

²² Ralph Roberts, "History of Cache National Forest" Vol. 1 Section 2. Subheading "Indians," located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

²³ Heaton, "No place to pitch their teepees," 162.

²⁴ Roberts, "History of Cache National Forest."

²⁵ Ferris, "Life in the Rocky Mountains," 123.

The rich grasses that supported herds of grazers, in turn, supported a variety of predators. As will be discussed in Chapter 2, soon after their arrival in the area, Mormon settlers initiated a campaign of predator extermination. Records of community hunts document the killing of wolves, coyotes, foxes and bears.²⁶ Other predators, such as mountain lions, bobcats, lynx, and wolverines were also present, but in smaller numbers.²⁷

In addition to big game and predators, settlers wrote of seeing large flocks of ducks and geese in the “marshy boggy swamp between Logan and Smithfield.”²⁸ In the foothills they encountered “prairie chickens” in abundance. During the unusually severe winter of 1855, Mormon cattlemen watching over a herd of church-owned cattle at Elkhorn Ranch in Cache Valley avoided starvation by killing and eating over 100 birds.²⁹ Reptiles, particularly rattlesnakes, were also abundant, causing concern for settlers who came upon them in barns, near homes, and at times next to their children. One pioneer mother wrote of a rattlesnake that learned to steal eggs right out of her kitchen.³⁰ Fish, also, populated the rivers and spring-fed creeks of the Bear River Range. Utah’s native trout, the Bonneville cutthroat, flourished in the waters of the Bear River Range. Shoshone people had long fished the clear mountain streams of the range, and were called *Panguiduka*, or “fish eaters,” by some.³¹ Mountain men and government explorers

²⁶ Victor Sorenson, “The Wasters and Destroyers: Community Sponsored Predator Control in early Utah Territory” (Plan B report, Utah State University, 1992).

²⁷ Ricks, “Some Recollections,” File MSS 389.

²⁸ *Ibid.*, 1.

²⁹ Joel E. Ricks, *The Beginnings of Settlement in Cache Valley*, 8.

³⁰ Orson Winso Israelsen, *Utah Pioneering: An Autobiography by Andrew M. Israelsen*. 2nd ed. (Madison, Wisconsin: Omnipress, 1989), 131.

³¹ Haddock, “A History of Cache Valley, Utah,” 6.

alike noted seeing the “speckled” trout, and Mormon settlers wrote of excellent fishing, especially on the Logan River.³²

The same water that native cutthroat thrived in provided life for the entire Bear River Range. In the semi-arid environment, all life adapted to its availability. The plants and animals living on or near the range were particularly well adjusted to deal with the dry climate, extreme temperatures, and occasional droughts. Native grasses grew heavily during the spring when soils were moist and later cured during the hot summer months. The range’s Douglas fir, pine, and aspen grew tall and in thick stands in the range’s higher elevations, and kept moisture locked in the soil to be released slowly over the course of the year. The herds of grazers and powerful predators that Shoshone Indians hunted (and that Mormon settlers later systematically slaughtered) were abundant, but not overly. They had learned to thrive in healthy numbers in the range’s many habitats and life zones.

³² Stansbury, *Exploration of the Valley of the Great Salt Lake*, 93.

CHAPTER 3
MULTIPLYING AND REPLENISHING THE EARTH
OR FAMILIARIZING A FOREIGN LANDSCAPE

In Genesis God commands Adam and Eve to “Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.”¹ For the Mormon faithful who settled Cache Valley beginning in the late 1850s to early 1860s, multiplying and replenishing the earth took the form of altering (subduing) the natural world to produce the things they most wanted and resembled their version of an ideal landscape. Mormon settlers introduced non-native plant and animal species to Cache Valley and the Bear River Range and engaged in a campaign to rid the area of its predators. This chapter discusses settlers’ interactions with the environment and briefly shows how exotic introductions and predator control disrupted important ecological processes of plant succession and predation among the native species of the Bear River Range.

Historian Thomas G. Alexander states that when Mormon settlers first arrived in Utah, Brigham Young taught a basic form of land, or environmental, stewardship. Young taught that the earth belonged to the Lord, and that humans could hold no title to the land or its resources. Landholders might manage God’s estate, but only as wise

¹ King James Version of the Bible, online edition, Genesis 1:28.
<http://www.lds.org/scriptures/ot/gen/1?lang=eng> (accessed March 17, 2013).

stewards.² Young's teachings were borrowed from the faith's founder, Joseph Smith, who, before his death, envisioned a theology of "wise stewardship" over both spiritual and temporal things.³ Smith taught that things in heaven and things on the earth were interconnected, and that church members had a responsibility to care for the earth just as they cared for their souls.⁴ For Brigham Young, caring for the earth meant actively increasing the diversity of God's creations. Young envisioned Utah's settlements as "oases of green."⁵ He instructed settlers to "Build cities, adorn your habitations, make gardens, orchards, and vineyards, and render the earth so pleasant that when you look upon your labors you may do so with pleasure and that angels may delight to come and visit your beautiful locations."⁶ Not realizing that their actions might disrupt native ecosystems and under the perception that they were acting as wise stewards, Young and his successors fostered the importation of several varieties of alien flora and fauna to the Intermountain Region, and encouraged the general body of settlers to do the same.⁷

Removed from its religious context, Mormon settlers' desire to multiply and replenish the earth can be viewed as a need to familiarize the landscape. Environmental historians have long established that throughout the western United States (and for

² Thomas G. Alexander, "Stewardship and Enterprise: The LDS Church and the Wasatch Oasis Environment, 1847-1930," *Western Historical Quarterly* 25, no. 3 (October 1994): 345.

³ *Doctrine and Covenants of the Church of Jesus Christ of Latter-Day Saints*, online edition, see the following sections and verses 51:19, 72:17, 72:22, 78:22, 101:61, 136:27, <http://www.lds.org/scriptures/search?lang=eng&type=verse&query=wise+steward> (accessed March 17, 2013).

⁴ *Ibid.*, 29:34, 29:31, 70:12, <http://www.lds.org/scriptures/search?lang=eng&type=verse&query=temporal+and+spiritual+things> (accessed March 17, 2013).

Pearl of Great Price, Book of Moses, of the Church of Jesus Christ of Latter-Day Saints, online edition 6:63, <http://www.lds.org/scriptures/pgp/moses/6.63?lang=eng#62> (accessed March 17, 2013).

⁵ Kathryn T. Morse, "Nature's Second Course: Water Culture in the Mormon Communities of Cache Valley, Utah, 1860-1916" (Master's thesis, Utah State University, 1992), 196.

⁶ *Ibid.*, 197.

⁷ Alexander, "Stewardship and Enterprise," 345.

decades prior to Mormon settlement of Cache Valley), Anglo settlers introduced non-native plants and animals and destroyed predators in an attempt to make a foreign and “wild” landscape into something “domestic” and familiar. Nancy Langston points out that in the Blue Mountains of the Pacific Northwest, for example, settlers found the landscape “alien, exposed, and frightening...nothing seemed welcoming and familiar...so they planted familiar trees and brought in familiar animals, and tried to carve out of the grasslands a small, manageable view.”⁸ Mormons pioneers were no exception, and the widespread patterns of landscape familiarization that took place across the American West occurred in Cache Valley as well.



Figure 3. Early settlement scene in Logan Canyon, Bear River Range. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

⁸ Nancy Langston, *Forest Dreams, Forest Nightmares: the Paradox of Old Growth in the Inland West* (Seattle: University of Washington Press, 1995), 63.

Soon after their arrival around 1857, Mormon settlers set to work creating their oasis of green. Life in Cache Valley was challenging. During those first years, many settlers suffered hardships while making the land produce the things they wanted. Charles W. Nibley, who later became one of Cache Valley's wealthiest men, wrote that his family's diet during their first year in Cache Valley consisted of wheat porridge, brown bread with a bit of butter and an occasional egg.⁹ Vegetables were hard to come by and settlers frequently suffered from scurvy and malnutrition. Despite Cache Valley's good soil, producing crops in the semi-arid climate was difficult. Getting water to crops required back-breaking labor, and only by working together were settlers able to divert the rivers of the Bear River Range to irrigate their fields.¹⁰ Even when crops began to grow, frost and destructive Mormon cricket invasions were a constant threat. Settler David Reese recalled that during his first summer in Cache Valley "a swarm of crickets came down off the bench and began to eat everything in sight."¹¹ Against such odds, Mormon settlers worked feverishly to grow their gardens and fields despite their imperfect understanding of the climate and environment.

Introduction of Exotic Plants

The spread of exotic plants to the Bear River Range, and in Utah more broadly, did not happen by accident. In 1856 Brigham Young established a plant-spreading organization called Deseret Agricultural and Manufacturing Society (DA&MS). Its

⁹ Charles W. Nibley, *Reminiscences* (Salt Lake City, Utah: 1934), 39.

¹⁰ For an excellent history of irrigation in Cache Valley see Kathryn T. Morse, "Nature's Second Course: Water Culture in the Mormon Communities of Cache Valley, Utah, 1860-1916" (Master's thesis, Utah State University, 1992).

¹¹ Joel Ricks, "Some Recollections Relating to the Early Pioneer Life of Logan City and Cache County," File MSS 389, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan. December 22, 1923, 3.

purpose, among other things, was to help Mormon settlers become entirely self-sufficient by distributing non-native plants and agricultural “know how” to local farmers. Young believed that if Mormon settlers could grow their own flax, hemp, wool, oil, raisins, olives and cotton, etc., they would not need to rely on the outside, “Gentile” world.¹² Under the direction of DA&MS leaders, plants, seeds and “know how” moved efficiently from church leaders in Salt Lake to local congregations (also known as wards). Leonard Arrington writes that groups of church members organized themselves to supply the Utah market with all kinds of products including sugar, molasses, tobacco, hemp, silk, flax, cotton, wool, raisins, olives, honey, and various fruits.¹³ In 1861, around the same time Mormon settlers began arriving in Cache Valley, Mormon leaders in Salt Lake City set up an experimental garden where non-native seeds, roots, and plants were tested for their ability to survive and thrive in Utah’s climate. Those plants that Brigham Young approved of, and that grew, were distributed. Arrington writes that local bishops were charged with “dictating in the wards the sowing of seeds, the planting of sugar cane, broom corn, etc., so as to procure the purest quality of seeds of all kinds and prevent their hybridization and deterioration.”¹⁴

As the population of Cache Valley grew from a few hundred in early 1859 to over 7,000 by 1880, so did the number of non-native plants in the area.¹⁵ Settlers transformed fertile valley landscapes dominated by native bunchgrasses into farms of wheat, potatoes,

¹² Mormon settlers referred to non-Mormons as “Gentiles.” The term essentially means an outsider or non-Mormon.

¹³ Leonard Arrington, “The Deseret Agricultural and Manufacturing Society in Pioneer Utah,” *Utah Historical Quarterly* 24, no. 2 (April 1956):167.

¹⁴ *Ibid.*, 169.

¹⁵ Compiled from the Eighth Census of the United States and cited in Joel Ricks, *The History of a Valley: Cache Valley, Utah-Idaho* (Logan, Utah: Cache Valley Centennial Commission, 1956). 444.

oats, rye, barley, beans, and corn.¹⁶ The decrease in available grasslands led farmers to graze their herds in the foothills of the Bear River Range. As herd numbers increased, native forage began to decline and settlers began supplementing native grasses with exotics such as orchard grass, Hungarian hay, and cheatgrass.¹⁷

Cheatgrass, in particular, affected plant succession and composition on the foothills of the Bear River Range. As native grasses declined, cheatgrass took over, altering key ecological processes including “disturbance regimes, soil nutrient cycling, community assembly, and successional pathways.”¹⁸ As a system driver, cheatgrass set in motion serious problems for native ecosystem resilience and ecosystem structure repair and function.¹⁹

After its introduction, cheatgrass and other non-native grasses followed livestock, taking the place of more palatable native grasses. Within a few decades of settlement, the foothills of the Bear River Range transitioned from a rich grassland to a dry desert landscape dominated by cheatgrass, sagebrush, and Utah juniper. Ecologist E.G. Pickford was the first to document this change in plant succession along the foothills of northern Utah. In his 1932 study Pickford located non-grazed areas (cemeteries were the only places he could find them) along the Wasatch Mountains that most likely represent native plant communities. He compared them with plant communities in landscapes that were (1) burned but not grazed, (2) burned and heavily grazed, and (3) heavily grazed

¹⁶ Kenneth Godfrey, *Logan, Utah: A One Hundred Fifty Year History* (Logan, Utah: Exemplar Press, 2010), 71.

¹⁷ Although the exact date exotic grasses came to Cache Valley is unknown, advertisements describing the benefits of non-native grasses appeared in the local newspaper, *Logan Leader* as early as 1880.

¹⁸ Merilynn C. Hirsch and Thomas Monaco, “Process-Based Management Approaches for Salt Desert Shrublands Dominated by Downy Brome,” *Natural Resources and Environmental Issues* 17 (2011): 1.

¹⁹ *Ibid.*, 1.

only. On lands that were burned but not grazed, he found depleted stands of perennial grasses and increases in annual grasses, chiefly cheatgrass. On areas burned and heavily grazed he found the total density of plant cover seriously reduced and stands of perennial grasses declining by nearly 85 percent. Sagebrush cover increased by 80 percent and annual grasses and poor perennial and annual weeds were predominant. On heavily grazed lands Pickford noted the serious depletion of perennial grasses, a decided increase in sagebrush, and in some instances a sharp increase in the density of poor perennial weeds and annual grasses. In all cases, the effects of over grazing and exotic introductions altered plant succession and resulted in less biodiversity and reduced grazing capacity.²⁰

Pickford was not alone in documenting changes in plant succession in areas settled by Mormons. During the 1940s and 50s ecologist Walter Cottam published several articles detailing how overgrazing and exotic introductions altered Utah's landscape ecology. In heavily grazed locations across the state, Cottam documented a pattern of intense grazing followed by decline or disappearance of native forage and the invasion of exotics. In a study of the sister canyons, Red Butte Canyon and Emigration Canyon near Salt Lake City, Cottam showed that in heavily grazed areas cheatgrass dominated the landscape. In Red Butte Canyon, which had been protected from grazing for 40 years, he found 10 native grasses that had disappeared entirely from Emigration

²⁰ Walter Pace Cottam, *Is Utah Sahara Bound?* (Salt Lake City: Extension Division, University of Utah, 1947), p.13. G.D. Pickford, "The Influence of Continued Heavy Grazing and of Promiscuous Burning on Spring-Fall Ranges in Utah," *Ecology* 13 (April 1932): 159-171.

Canyon (which was unprotected). His study demonstrates the correlation between monocultures and overgrazing and exotic introductions.²¹

Predator Control

Another important way Mormon settlers familiarized the Bear River Range environment was by removing its predators. Settlers viewed predaceous “wild” life, particularly coyotes and bears, as an obstacle to building the “oases of green” envisioned by Brigham Young. During the winter of 1863, community leaders in Cache Valley organized a large-scale hunt to rid the area of its predators once and for all. Community leaders divided the valley into two teams based on geography. Sylvanus Collet led the northern portion and Thomas E. Ricks the southern half. Community leaders attached point values to target species, and participants agreed that the team that killed the most predators would be treated to a dance and dinner by the losing side.²² M.R. Hovey, a Cache Valley historian, records that coyotes and wolves were the main focus, but no predator was overlooked. Hovey notes that after the snow was deep enough to make it difficult for the coyotes to run, “hundreds mounted horses for the contest and made a careful search through fields of the valley. Hundreds of coyotes and wolves were killed with heavy clubs and guns.”²³

Cache Valley settlers employed a method commonly known as a “ring hunt” to rid the area of predators. This hunting method dates to Colonial times in which

²¹ Walter P. Cottam and Frederick R. Evans, “A Comparative Study of the Vegetation of Grazed and Ungrazed Canyons of the Wasatch Range, Utah,” *Ecology* 26, no. 2 (April 1945): 181.

²² Victor Sorenson, “The Wasters and Destroyers: Community Sponsored Predator Control in early Utah Territory” (Plan B report, Utah State University, 1992), 11.

²³ M.R. Hovey, *An Early History of Cache County* (Logan, Utah: Logan Chamber of Commerce, 1925), 65.

community members formed a barrier or “ring” and forced targeted animals into close proximity where they could be easily killed. In the 1863 Cache Valley hunt, once settlers had rounded up the animals they dismounted from their horses and beat the creatures to death with clubs or shot them at close range. In the end, Sylvanus Collet’s team won, albeit only by a small margin. Thomas Ricks’s team blamed their loss on not having the full support of a key member of their team, John Woolf, who had only succeeded in bagging a coyote, wolf, and crow before taking ill.²⁴



Figure 4. A ring hunt of jack rabbits near Fairview, Utah, ca. 1912. The 1863 Cache Valley hunt may have looked something like this. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

²⁴ Ibid.

The removal of predators in Cache Valley continued long after the 1863 ring hunt. Settlers killed target species whenever they had the chance. When someone sighted a predator, men in the community gathered, armed themselves, and went out to “fight them.”²⁵ Historian Victor Sorenson has suggested that settlers used such events as military and camaraderie-building exercises. Before killing the animals, men often received instructions from local military leaders about how to proceed. Settlers viewed bears as the ultimate challenger, requiring the highest cooperation and strategic planning to defeat. Sometimes, however, bears got the best of settlers as illustrated by the following grizzly encounter that took place in August 1863 near the foothills of the Bear River Range in a small community called Providence.

Tired of having his corn patch robbed each night by a grizzly, Ira Rice set a strong trap to catch the nightly visitor. One Morning he found evidence that the bear had been caught in the trap. Dragging the trap with him, the bear had crossed the Logan River and gone into the canyon. Armed with pistols and rifles, Mr. Rice and three or four of his adventurous neighbors trailed the grizzly. They found him near the river trying to rid himself of the trap. Wounded by a bullet from Mr. Rice’s rifle, the huge grizzly, with a fearful growl, lunged toward his pursuers. Catching up with William Dees, he knocked him to the ground with a mighty swing of his paw. Bleeding profusely, from the head wound, Mr. Dees was rushed back to his home, after three or four shots had frightened the bear into the hills. Determined to get the bear, Mr. Rice returned to the canyon the next morning. Fourteen men and boys armed with knives, pistols, shotguns, and rifles went with him. Arriving at the scene of the previous day’s encounter, they found the bear sitting on the trail, nursing his wounds. This time he did not wait for the attack. Sighting the group, the bear arose in his fury. There was an immediate scamper for safety behind bushes and into larger trees. Braver than the rest, Alpheus Harmon, aiming his weapon at the bear, pulled the trigger when they were only a short distance apart. The gun failed to fire. It was too late for Harmon to get away, and the bear wrapped him in its arms. Time and again Harmon struck at the bear with a knife, but he was seriously clawed before he was released by the bear. Afraid to shoot for fear of injuring Harmon, one man struck the bear over the head with his rifle barrel. At the same time, Henry Gates fired his shotgun into the mouth of the bear, knocking out several of his teeth. The infuriated animal released Harmon and plunged toward Gates, clawing his face,

²⁵ Sorensen, “Wasters and Destroyers,” 18-19.

arms and legs and inflicting serious wounds. The fearful cries of the two wounded men brought quick action from their comrades. Three or four shots fired into the body of the bear seemed to have no result except to further infuriate the beast. It was then that William Dees, who had been badly wounded by the bear the day before, sneaked up behind it and shot it in the head. The bear fell to the ground dead. The two badly wounded men were carried home on improvised stretchers made from willows. Six days later Henry Gates died as a result of this wounds.²⁶

As Mormon communities grew in Cache Valley, predator populations declined.

Although settlers were unable to rid the range of all its predators, especially the hated coyote, they significantly decreased their numbers and successfully removed bears, wolves, and wolverines, and possibly mountain lions by the turn of the century.²⁷

The past removal of predators from the Bear River Range highlights important questions as to the role these animals play in mountain ecosystems. Modern ecological studies have shown that predators are important in many environments, and that the presence or absence of these top-level killers impacts ecosystems in various and often unpredictable ways.²⁸ A recent study by researchers at Oregon State University found that the historic presence of mountain lions in southern Utah's Zion National Park helped the area maintain a healthy ecological balance. Since mountain lions were removed from the park beginning in the 1930s, the deer population has exploded, causing "severe ecological damage, loss of cottonwood trees, eroding stream banks, and declining biodiversity."²⁹

²⁶ Providence History Committee, *Providence and Her People* (Providence, Utah: K.W. Watkins and Sons, 1974), 19-20.

²⁷ *Ibid.*, 24.

²⁸ Adam T. Switalski, et al. "Wolves in Utah: An Analysis of Potential Impacts and Recommendations for Management," *Natural Resources and Environmental Issues* 10 (2002) Article 1.

²⁹ "Cougar Predation Key To Ecosystem Health" *Science Daily*, October 25, 2006. <http://www.sciencedaily.com/releases/2006/10/061024214739.htm>. (accessed November 29, 2012).

When humans remove predators from any particular ecosystem the consequences are not always immediately clear. Removal can create time lags or generational effects that go unnoticed for years.³⁰ In studies of deer and coyote interactions in Texas, for example, researchers found that reducing coyote populations stimulated short-term growth in white-tailed deer populations. However, over the long term, as the deer herd population grew unchecked, forage supply became inadequate. The general health of the herd declined, parasite loads increased, deer conceived later, bucks retained velvet longer, males shed antlers later, and gross reproductive performance decreased.³¹ Eventually the deer population declined to levels comparable to outside the study area where healthy populations of coyotes remained.

In the cases of coyotes and deer in Texas, and mountain lions in Zion National Park, evidence indicates that it is nearly impossible to foresee all the effects predator removal has on individual species and larger ecosystems. Predator researchers at Utah State University have argued that it is unwise to simplify the role and impact of predation independent of other ecological considerations.³² Other such ecological considerations must include interactions between all plant and animal species living in an ecosystem.

When Mormon settlers set out to rid the Bear River Range of its predators they were not thinking about how their actions would impact the overall and long-term health of the range. Although we know that Mormon settlers and their predecessors were very successful in removing predators, we do not fully understand what this meant for the Bear River Range then nor what it means now. Whatever ecological role predators might

³⁰ Eric M. Gese and Frederick F. Knowlton, "The Role of Predation in Wildlife Population Dynamics," *USDA National Wildlife Research Center - Staff Publications* (2001), 7.

³¹ *Ibid.*, 15.

³² *Ibid.*, 16.

have played in the healthy, functioning environment of pre- and early settlement Cache Valley is lost.

Today, however, with better informed management practices, some species (coyotes, foxes, birds of prey) once targeted by settlers for removal have returned to the Bear River Range, and others (mountain lions, black bears) are making a comeback. As species return, scientists and historians have opportunities to learn more about predators' individual and collective roles in the larger Bear River Range ecosystem. Extant studies discussing predator ecology limit their focus to how predators affect big game, agriculture, and livestock depredation. Further research, similar to that being done in Utah's Zion National Park, is necessary if we are to understand the effects of predator removal and return on the larger Bear River Range ecosystem.

Introduction of Exotic Fishes

In addition to spreading non-native plants and removing predators, Mormon settlers (once again, as part of their efforts to familiarize the landscape) introduced a variety of exotic fishes to the waters of the Bear River Range. This created patterns of ecological change that continue to shape the area's fisheries today. Because the history of fish culture in Utah has received little attention, this section briefly discusses the origins of pioneer stocking efforts in broad terms. This section also documents the exotic species introduced to waters of the Bear River Range and provides details about how the introduction of rainbow trout and brown trout negatively affected native Bonneville cutthroat trout in the Logan River and Blacksmith Fork River.

The artificial rearing of fish became popular in Utah during the late 1860s. Articles highlighting the benefits of fish culture began appearing in Salt Lake area newspapers as early as 1868 when *Deseret News* applauded the efforts of Salt Lake City resident R.T. Burton for constructing a 60-foot pond and attempting to spawn native trout and suckers.³³ Mormon church leaders also encouraged the growing and consumption of fish over beef, which was more expensive to obtain, and pork, which was considered unclean.³⁴ During the April 1868 General Conference of the church, for example, Apostle George Q. Cannon spoke on the benefits of fish culture and declared fish “to possess brain making material to a greater extent than any other animal food.”³⁵

The fish Cannon spoke of was likely the native Bonneville cutthroat trout, which had been an important source of food for Mormon settlers since their arrival in the Great Basin in 1847. During the winter of 1855, eating cutthroat trout and suckers from Utah Lake saved hundreds of Mormon settlers from starving to death after drought and crickets destroyed their crops.³⁶ The zeal with which Mormon settlers consumed and sold native trout quickly took its toll on local fisheries. By 1872, when George Montague Wheeler led the United States Geologic Survey through Utah, native populations of Bonneville cutthroat throughout the state, but especially in Utah Lake, were in serious decline. Dr. H.C. Yarrow, a member of Wheeler’s survey crew, reported that settlers indiscriminately harvested trout from Utah Lake as quickly as they were able. Yarrow noted that during spawning runs fishermen would place nets at the inlets of Utah Lake and catch thousands

³³“Items, Fish Culture,” *Deseret News*, May 27, 1868

³⁴“General Conference,” *Deseret News* April 15, 1868

³⁵ *Ibid.*

³⁶ Peter Madsen, “The Grasshopper Famine, The Mullet, and the Trout,” *Improvement Era* (1910): 516-521.

of trout attempting to swim upriver to spawn. During his July visit, Yarrow estimated that fishermen using nets were harvesting 150 pounds of trout per day. While this was an impressive amount, it was significantly less than harvests of the previous decade. During an interview with Peter Madsen, long-time fisherman on Utah Lake, Yarrow learned that a decade earlier Madsen regularly made hauls of 3,500 pounds of trout per day. After seeing such destructive practices, Yarrow warned, “if means are not shortly taken to prevent the destructive methods of fishing now employed, the species must become extinct after a few years.”³⁷



Figure 5. A catch of cutthroat trout ca. 1900. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Mormon leaders were aware of declining native fisheries years before Yarrow visited Utah Lake. However, instead of calling for regulations on commercial fishing, or

³⁷ Yarrow, H.C. “On the Speckled Trout of Utah Lake” *United States Commission of Fish and Fisheries, Report of the Commissioner for 1872 and 1873, Vol 2.* (Washington, D.C.: Government Printing Office, 1874), 363-368.

a more sustainable land ethic, they promoted fish culture from the pulpit and initiated a fish-stocking program of their own. During January 1871 prominent Mormon businessmen led by Wilford Woodruff and Brigham Young created Zion's Cooperative Fish Association (ZCFA). As an extension of the Deseret Agricultural and Manufacturing Society, ZCFA was tasked with improving Mormon settlers' self-sufficiency by stocking Utah's declining rivers and lakes with native and exotic fish species. Brigham Young appointed his friend Albert Perry Rockwood as the first Territorial Fish Superintendent and gave him the responsibility of figuring out how to artificially grow fish and get them into Utah's lakes and streams.

Rockwood had no formal training as a biologist or fish culturist, and his time was already divided between his five wives and job as territorial prison warden. During the first ZCFA meeting in January 1871, Rockwood recorded that community members in Salt Lake came to the consensus that no one in the territory had a practical knowledge of fish culture. "There were plenty of good fishermen who knew how to catch and eat fish; all of them knew how to destroy, but none to create by artificial propagation and cultivation."³⁸

Rockwood's lack of formal training didn't deter him. On May 12, 1871, he traveled by wagon to Silver Creek, a tributary of the Weber River, to collect spawning cutthroat trout. His mission was to transport as many live cutthroat as possible to rearing ponds in Salt Lake City (which had been conveniently built by prison inmates), get them

³⁸ *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Third Session, for the Year 1878* (Salt Lake City: J.W. Pike, Public Printer, 1878), 98.

to spawn, then put the fry in Utah Lake.³⁹ After setting up camp, Rockwood immediately went to work catching native cutthroat trout, which he placed in crates and milk cartons and loaded on wagons bound for Salt Lake City. The project didn't go well. Many of the fish died from lack of oxygen in the cramped storing crates, the bigger fish ate the smaller fish, and the cutthroat that made it into the rearing ponds alive wouldn't spawn.⁴⁰ To add insult to injury, Rockwood later learned that all the fish in the ponds were male. He recorded, "This solves the problem, why my trout did not spawn...I was on the headwaters before the females arrived, consequently, caught nothing but male fish, and *none of them would spawn.*"⁴¹

Rockwood never figured out how to spawn cutthroat trout, but it did not matter. The same year (1871) Rockwood attempted to raise cutthroat trout in Salt Lake City, fish culture in the United States hit a new high. First, Spencer Fullerton Baird, who at the time was director of the Smithsonian, successfully petitioned Congress to fund the creation of the U.S. Fish Commission whose objective included promotion of artificial stocking throughout the United States. Second, Seth Green, a fish culturist from New York, successfully transported 12,000 live shad fry from Albany, New York, to the Sacramento River, disproving the notion that it was impossible to move live fish over great distances. Interestingly, on his return trip to New York, Seth Green stopped in Salt

³⁹ Luceal Rockwood Curtis, *Compiled and Assembled History of Albert Perry Rockwood* (Salt Lake City: 1968), 127

⁴⁰ *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Third Session, for the Year 1878*, 97-110.

⁴¹ *Ibid.*, 102-103.

Lake City where he met a frustrated Rockwood still trying to get his cutthroat trout to spawn.⁴²

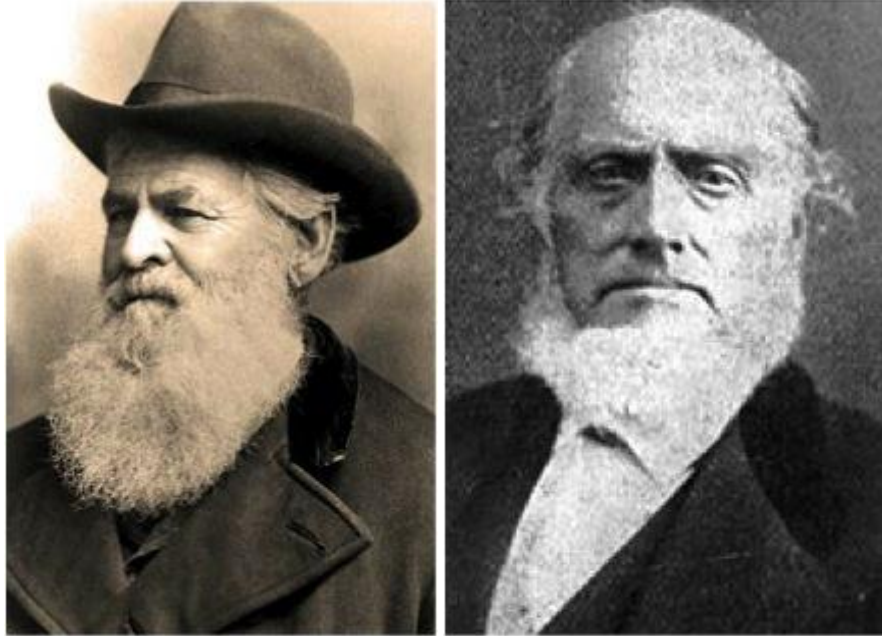


Figure 6. Seth Green (left) and Albert Perry Rockwood (right) photos courtesy of AndersHalverson.com and findagrave.com.

Green and Rockwood (who both resemble Old Testament figures), became friends. After inspecting the fish farms in Salt Lake City, Green recommended that, instead of wasting more time on native fish, Rockwood should accompany him to New York where he would set him up with a variety of “familiar,” east coast fishes to bring back to Utah. While back east, Rockwood visited with other fish culturists who gave him much-needed advice. Most importantly, however, Rockwood was made aware of the U.S. Fish Commission’s efforts to distribute fish species to states and territories around the

⁴² *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Third Session, for the Year 1878*, 101.

country. In a few weeks Rockwood was on his way back to Salt Lake with catfish fry, silver eels, shad, seed oysters, and much valuable information.⁴³



Figure 7. “Aquarium” railcar designed to transport fish fry. U.S. Department of Commerce. Photo courtesy of AndersHalverson.com

During the following eight years, before his death in 1879, Rockwood spent his energy importing exotics to Utah, rather than cultivating native fish species. Many of the imports came from his friends Seth Green and Spencer Fullerton Baird (Baird was by this time the new Director of the U.S. Fish Commission). During his time as superintendent, Rockwood experimented with American shad, black bullhead, king salmon, Sebago salmon, eastern brook trout, lake whitefish, lobsters, oysters, and American eel. His successors, A.M. Musser and John Sharp continued his legacy by experimenting with cod, mackerel, blue crab, black crappie, striped bass, black bass, goldfish, rainbow trout,

⁴³ *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Third Session, for the Year 1878*, 101-102.

brown trout, lake trout, American grayling, channel catfish, yellow perch, largemouth bass, rock bass, green sunfish, bluegill, and carp.⁴⁴

It is important to recognize that settlers had different species hierarchies than we do today. A fish's value was based on its familiarity and utility, not its native status. For Rockwood and ZCFA, there was no thought given to how an exotic species might disrupt native fish populations or stream ecosystems. These early fish culturists viewed rivers as laboratories and, in the end, if a fish survived, it meant God wanted it there. Thus, by the turn of the century, thanks to the efforts of Rockwood and others, there were few fish species that had not at some point swam in Utah waters.

Many of the fish species imported to Utah Territory between 1870 and 1910 made their way into the waters of the Bear River Range. Logan River, Blacksmith Fork River, Bear River, and Bear Lake were favorite stocking locations. During the fall of 1876, 11,000 king salmon fry were stocked in Bear River in Rich County and another 4,000 in Blacksmith Fork River in Cache County.⁴⁵ Sometime during 1892 American shad were introduced to Bear River near Cache Junction.⁴⁶ In 1897 bass were introduced to Bear Lake.⁴⁷ In 1898 the state of Utah built a new fish hatchery that provided various fish fry to nearly every county in the state. Between 1900 and 1901 Cache County Fish and Game Warden H. H. Peterson, Jr., planted 160,000 native trout fry and some 250,000 eastern brook trout into Logan River, Blacksmith Fork River, Little Bear River, Bear

⁴⁴ *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Second Session, for the Year 1876* (Salt Lake City: David O. Calder, Public Printer, 1876), 101-102; Boris Popov, "The Introduced Fishes, Game Birds, and Game and Fur-Bearing Mammals of Utah" (Master's thesis, Utah State University, 1949), 38-77; *Journals of the Legislative Assembly of the Territory of Utah, Twenty-Third Session, for the Year 1878*, 97-110.

⁴⁵ *Ibid.*, 106.

⁴⁶ Popov, "The Introduced Fishes, Game Birds, and Game and Fur-Bearing Mammals of Utah," 41.

⁴⁷ John Sharp, *Report of the State Fish and Game Warden for the years 1897 and 1898* (Salt Lake City: 1899), 13.

River, Smithfield Creek (Summit Creek), and High Creek.⁴⁸ Although documentation is sparse, brown trout and rainbow trout likely made their first appearance in the waters of the Bear River Range during the late 1890s or early 1900s.⁴⁹ By the summer and fall of 1909 state employees distributed some 100,000 brown and rainbow trout fry among Logan River, Blacksmith Fork River, High Creek, Smithfield Creek, and Paradise Creek (Little Bear).⁵⁰



Figure 8. Native Bonneville cutthroat from Logan River, Utah, 2012. Photo by author.

By the 1930s brown and rainbow trout were well established in the waters of the Bear River Range. During the summer of 1935, Dr. C.J.D. Brown of the Bureau of

⁴⁸ John Sharp, *Third Biennial Report of the State Fish and Game Commissioner for the Years 1899 and 1900* (Salt Lake City: 1901), 12.

⁴⁹ Popov, "The Introduced Fishes," 50.

⁵⁰ Fred W. Chambers, *Eighth Biennial Report of the Fish and Game Commissioner of the State of Utah for the years 1909-1910* (Salt Lake City: 1911), 28, 35.

Fisheries, which would later become the U.S. Fish and Wildlife Service, conducted a survey of Logan River and Blacksmith Fork River as part of a larger survey of the waters in the Cache National Forest. Brown's study revealed that Logan River and Blacksmith Fork River had undergone a substantial ecological transformation. Instead of being native cutthroat fisheries, the two rivers had become "smorgasbord fisheries." Using creel sampling, Brown found that brown trout thrived in the lower portions of the Logan River and had totally displaced native Bonneville cutthroat trout. He found Rainbow trout in poor condition throughout the entire system and noted that this species seemed unable to adapt to any particular section of river. Brown located some brook trout in the upper section of Temple Fork Creek, and concluded that cutthroat were abundant only in the upper Logan River and its tributaries. Overall, Brown recorded that the condition of all fish species in the Logan River was poor. His survey of Blacksmith Fork River was similar, except that the only place cutthroat remained in healthy numbers were in the river's small tributaries, and at least half of the rainbows caught in the mainstem Blacksmith Fork River were rainbow-cutthroat hybrids.⁵¹

This chapter has discussed how the introduction of exotic plant and fish species in addition to predator removal disrupted important ecological processes of plant succession and predation among native species found in and around the Bear River Range. Woven into these changes are the settlers themselves, whose actions were motivated by a religious sense of duty to "multiply and replenish the earth" as well as a more basic desire to familiarize the landscape. Settlers worked hard to make the earth produce the things

⁵¹ C.J.D. Brown, "A Survey of the Waters of the Cache National Forest" (Washington, D.C.: 1935), 1-32, located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

they most wanted and gave little thought to how their actions might affect ecosystem reproduction and health. The following chapter continues the history of the Bear River Range by discussing the rise of large scale logging, grazing, and hunting on the Bear River Range.

CHAPTER 4

A MOUNTAIN RANGE IN CRISIS

Donald Worster has argued that the origin of environmental degradation in the American West can be found in the capitalist worldviews and modes of productions employed by its settlers.¹ In Cache Valley Mormon settlers integrated capitalistic modes of production during the Cache Valley lumber boom of the 1870s and 80s, the livestock boom of the 1890s, and the rise of commercial hunting around the turn of the century. Settlers flocked to the Bear River Range to turn its forests into railroad ties. They imported thousands of sheep and cattle to satisfy the demands of a growing livestock industry. And they overhunted big game to the point of extirpation. The modes of production or, in other words, the ways in which settlers extracted natural resources, were environmentally damaging and caused a series of ecological changes that contributed to one another. Heavy logging led to deforestation. Deforestation increased the number of wildfires, which in turn destroyed even more timbered lands. Severe overgrazing and drought reduced ground cover and accelerated the range's transition from grassland to desert as described in Chapter 2. The compounding effects of damaging production modes eventually handicapped the Bear River Range's ability to hold its snowpack. Soil erosion followed and by the turn of the century, local rivers were full of silt and had all but dried up. For wildlife, the combination of habitat loss, competition with livestock, and hunting resulted in overall decline.

¹ Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon, 1985), 75-80.

Logging

Timber extraction began on the Bear River Range with the arrival of Mormon settlers in the early 1860s. Small, locally owned sawmills provided the building materials settlers needed to construct homes and communities. The coming of the railroad to Cache Valley in the 1870s brought an almost insatiable demand for railroad ties. Douglas Bird has rightly pointed out in his thesis, “A History of Timber Resource Use in the Development of Cache Valley, Utah,” that both privately operated sawmills as well as community-sponsored United Orders were responsible for removing the majority of timber from the Bear River Range.²



Figure 9. Men hauling logs into Cache Valley from Bear River Range, ca.1880. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

² Douglass Bird, “A History of Timber Resource Use in the Development of Cache Valley, Utah” (Master’s thesis, Utah State University, 1964), 31.

The logging company Coe & Carter was the largest privately owned firm to conduct operations in the Bear River Range. As a supplier for Union Pacific from 1867 to 1870, Coe & Carter removed some three million ties from Wyoming's Medicine Bow Range before moving part of their operation to northern Utah.³ On May 11, 1877, John Cardon and several other men from Cache Valley rushed up Logan Canyon to commence constructing living quarters at Temple Fork because "word had come to Logan that the Coe & Carter Logging Company had planned to move into the Temple Fork area to cut ties for the railroad."⁴ Settlers were worried Coe & Carter might cut the timber they were planning to use to build the Logan Temple. Coe & Carter eventually set up shop near Hardware Ranch in Blacksmith Fork Canyon and their operations spread to the north and south.⁵

Coe & Carter conducted operations on the Bear River Range from 1877 to at least 1881. Records document the firm's shipment of large numbers of railroad ties during this period. During the 1879 logging season, for example, Coe & Carter employees floated between 100,000 and 200,000 ties down the Logan River alone.⁶ Contract shipping operators transported the ties primarily to Corrine, Utah, where the Central Pacific railroad used them to repair track or outsourced them to other locations. If 1879 represents an average year, then from 1877 to 1881 (the time Coe & Carter logged the range), roughly one million ties would have been removed from the Logan River drainage by the firm. Logan River drainage was only one of several drainages logged.

³ Scott Thybony, Robert G. Rosenberg, and Elizabeth Mullett Rosenberg, *The Medicine Bows: Wyoming's Mountain Country* (Caldwell, Idaho: Caxton Printers, 1985), 60-61.

⁴ Nolan Porter Olsen, "The Temple Sawmill" Region 4, Cache National Forest Files, R4-1680-2006-0233. United States Forest Service, Region 4 Office, Ogden Utah.

⁵ Bird, "A History of Timber Resource Use," 33.

⁶ "Local Lines," *Logan Leader*, October 30, 1879.

Blacksmith Fork, Avon, Smithfield, and Cub River were heavily logged as well.

Although no records document the total number of ties removed from the Bear River Range, it was likely in the millions.

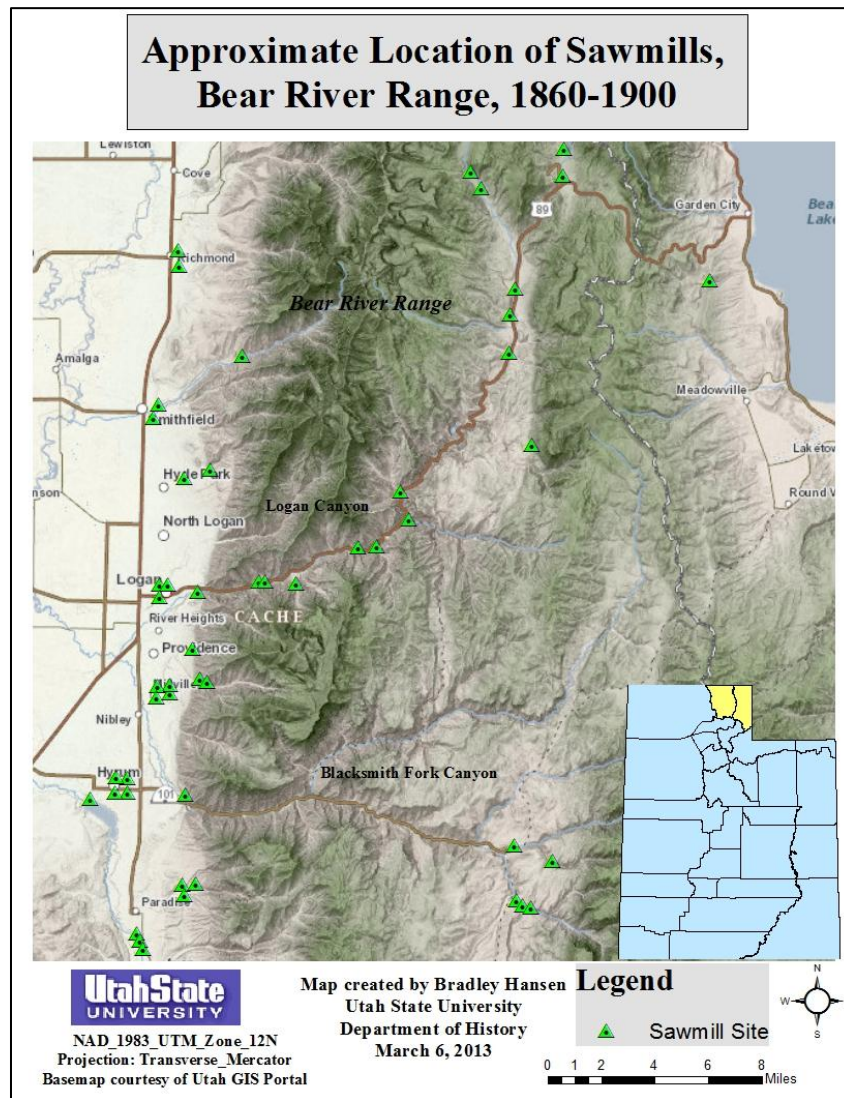


Figure 10. Approximate location of sawmill cites on the Bear River Range near Cache Valley. Data adapted from Bird’s “A History of Timber Resource Use,” Figure 5.

The extraction of large quantities of ties from the Bear River Range provided jobs and extra income for Mormon settlers in Cache Valley. Coe & Carter often hired Mormon settlers directly, and Cache Valley farmers welcomed the opportunity to earn extra cash to supplement their agricultural incomes. Conveniently, most of the logging took place during the winter months, the time of year farmers were not in their fields. Winter was ideal because moving trees on snow was easier than on dry ground. After snows covered the slopes, loggers would cut the trees, remove the branches, and slide them down the side of the mountain where expert hewers would cut the trees into ties. In spring, when the rivers were swollen, loggers floated the ties down the canyons to Cache Valley where they were distributed.⁷

Working in winter brought its share of accidents. As loggers denuded steep mountain slopes, avalanches increased. During the winter of 1877, several Mormon settlers and Coe & Carter employees were caught in a snow slide while working near Curtis Creek in Blacksmith Fork Canyon. A James Smyth from Kansas was killed.⁸ Another avalanche near Temple Fork in Logan Canyon killed William King of Logan and a man named Easterholt from Bear Lake Valley. N.W. Crookston, sheriff of Cache County and member of the rescue party, found Easterholt. He later recalled the ordeal:

I happened to go with a few men to the west end of the slide. We had not dug much, before one of the boys uncovered Easterholt's head. He was standing up, one hand holding to willows, one foot on the bank. He had run across the creek. A few more steps and he would not have been caught in the snow. Snow packed him in tight. It was very wet. He could not move a hand. The top of his head was not more than a foot under the snow.⁹

⁷ M.R. Hovey, *An Early History of Cache County* (Logan, Utah: Logan Chamber of Commerce, 1925), 163.

⁸ Ibid.

⁹ N.W. Crookston Collection, Coll MSS 71 Box 3 Fd 2. Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.



Figure 11. “In Memory of James Smyth” Headstone near Hardware Ranch, Blacksmith Fork Canyon. Photo by author.

Despite the dangers associated with logging, many Mormon settlers sought out employment with Coe & Carter directly, or through community-sponsored United Orders. The United Order movement in Cache Valley is fascinating and deserves more attention than can be given here.¹⁰ Briefly though, United Orders were church-affiliated joint stock companies designed to excel in one particular enterprise. United Order dairies, sawmills, livestock herds, and manufacturing companies were established in the 1870s for the purpose of facilitating a more unified and economically independent

¹⁰ For an excellent assessment of the United Order Movement see Leonard J. Arrington, *Great Basin Kingdom: An Economic History of the Latter-day Saints, 1830-1900* New ed. (Urbana, Ill.: University of Illinois Press, 2005).

Mormon community. When Coe & Carter came to the Bear River Range, they found it beneficial to subcontract work out to Mormon United Order companies which were highly efficient and already had workers and sawmills at their disposal. In 1881 Coe & Carter contracted with the United Order Building & Manufacturing Co. (U.O.B.& M. Co.) of Logan to supply “all the broad gauge ties obtainable between Hyrum (Utah) and Franklin (Idaho).”¹¹ Charles W. Nibley, manager of the U.O.B.& M. Co., facilitated the deal and promoted the work as an opportunity for settlers to pay down their debts. The *Logan Leader* announced that the contract would “furnish to the people of this valley an opportunity to obtain cash in return for labor and the timber on our mountains.”¹² Mormon loggers employed by United Order companies made quick work of the remaining accessible timber found on the Bear River Range. A year after Coe & Carter contracted for “all the ties between Hyrum and Franklin” the *Logan Leader* ran the following article:

In former years lumber had been a cheap and plentiful commodity in Logan, in fact one of our chief articles of export. But the last two years has witnessed a great change in this respect. Instead of lumber being plentiful it is actually becoming what might be termed scarce, so difficult is it to get bills filled on short notice... At the present time it is impossible to have a bill or lumber of unusual size, or calling for unusual length, filled on short notice, and as for any considerable quantity of lumber being found lying in a yard waiting for a customer, the like has not been seen in the county this summer nor last. On the contrary, our home mills have been and are today crowded to fill orders. If this town and county continue to grow at this rate it will be but a few years before the question of our lumber supply will be a serious problem. Already Logan is calling for lumber from Beaver Canyon and other points on the U. & N. and we may ere long have to go even farther away from home than that to get it. Few advantages assist so materially to the building up a country as cheap and abundant lumber and it is greatly to be regretted that its cost and the difficulty of obtaining a sufficient supply are increasing in our thriving community.¹³

¹¹ “Big Tie Contract,” *Logan Leader*, February 4, 1881.

¹² *Ibid.*

¹³ “The Lumber Market,” *Logan Leader*, July 7, 1882.



Figure 12. The United Order Manufacturing & Building Co., located on Main Street in Logan, Utah was responsible for logging much of the Bear River Range. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

By the mid-1880s most of the accessible timber on the Bear River Range had been logged, and Logan residents had to travel long distances to obtain lumber or were forced to have it shipped to them. Beaver Canyon, the area which today is home to Beaver Mountain Ski Resort, was one of the only places on the range that had not been cleared. Shortly after the abovementioned article was printed, Coe & Carter pulled out of the Bear River Range to seek opportunities elsewhere and the United Order companies

whose economy was based primarily on selling ties and other lumber products began to decline.¹⁴



Figure 13. Sheep Camp, Logan Canyon ca. 1900. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Grazing

As the lumber boom on the Bear River Range came to an end, an upsurge in the livestock business began. Two important factors contributed to the rise of the livestock industry on the Bear River Range. First, the railroad linked Cache Valley to the rest of the nation, providing ranchers with access to markets on the East and West Coasts, and

¹⁴ After 1882 references to Coe & Carter disappear from local newspapers. Although United Order companies continued to log the Bear River Range, they did so on a much smaller scale.

better assurance that their stock would arrive in good condition and bring a fair price.¹⁵

Second, the Bear River Range offered stockowners access to thousands of acres of free public grazing lands. It is important to note that in Utah, and throughout the American West for that matter, the growth of the livestock industry depended on the availability of public rangelands. There were neither land use regulations nor restrictions on the number of cattle and sheep allowed to graze on the range. In Utah, and particularly on the Bear River Range, first Mormon settlers and then Gentiles (non-Mormons) took advantage of having both the railroad and abundant public rangelands nearby.

Utah historian Charles S. Peterson points out that when compared with the rest of the American West, the livestock industry in Utah evolved in a unique way. In his article “Small Holding Land Patterns in Utah and the Problem of Forest Watershed Management,” Peterson argues that in nearly every Mormon community settlers operated what was essentially a farm-based livestock industry.¹⁶ Instead of a few large herds run by a handful of wealthy ranchers (as was the case in other western states), in Mormon communities, everyone ran a few cattle and sheep on public lands.¹⁷ In Cache Valley, community-sponsored cattle herds were the first to graze the Bear River Range. During the summer of 1862, for example, town leaders hired a young Charles W. Nibley to watch over the Logan sheep herd while it grazed the foothills near Logan Canyon.¹⁸ By the 1890s, though, community-sponsored herds gave way to hundreds of small, privately owned operations.

¹⁵ John Keith Woodfield, “The Initiation of the Range Cattle Industry of Utah” (Master’s thesis, University of Utah, 1957), 47.

¹⁶ Charles S. Peterson, “Small Holding Land Patterns in Utah and the Problem of Forest Watershed Management,” *Forest History* 17 (July 1973): 4-13.

¹⁷ *Ibid.*, 9.

¹⁸ Michael E. Christensen, “The Making of a Leader; A Biography of Charles W. Nibley to 1890” (Ph.D. diss., University of Utah, 1978), 42.

At first, Mormon-owned livestock enjoyed a monopoly on rangelands. However, by the early 1890s outside cattle and sheep operations began to compete with Mormon herds for forage. The arrival of non-Mormon livestock operations in Utah took place in two phases dominated first by cattle and then sheep. Cattle outfits established themselves on the periphery of Utah about the same time Mormon livestock interests were expanding. Competition for forage ensued, resulting in severe overgrazing of both winter and summer grazing lands. In the winter, stockowners raced to fill Utah's west deserts to top capacity. With the arrival of spring, owners rushed cattle to nearby mountain ranges where they were pastured in the higher elevations until snows forced them out or forage was gone.¹⁹ The second phase was similar, except the animals being grazed were not thousands of cattle, but rather millions of sheep. Peterson, who has written much about grazing history in Utah has shown that because of Utah's geographic location, it was the natural "crossroads of the west."²⁰ Itinerant sheep herds from areas across the region at some point traveled through Utah on their way to West or East Coasts markets and, as a result, Utah's ranges suffered disproportionately. The number of cattle and especially sheep that grazed Utah's public lands was impressive. From 1880 to 1900 the number of grazing cattle increased from around 300,000 to just less than 500,000 then leveled off to around 300,000 by 1900. The number of sheep, however, shot from 200,000 in 1880 to 3.8 million by 1900 before numbers began to decline.²¹ The number of livestock grazing

¹⁹ Peterson, "Small Holding Land Patterns," 6.

²⁰ *Ibid.*, 6.

²¹ Walter Pace Cottam, *Is Utah Sahara Bound?* (Salt Lake City: Extension Division, University of Utah, 1947), p. 4.

the Bear River Range during the 1890s sheep boom was equally impressive. Sources suggest that in Logan Canyon alone over 1.5 million sheep grazed from 1890 to 1900.²²

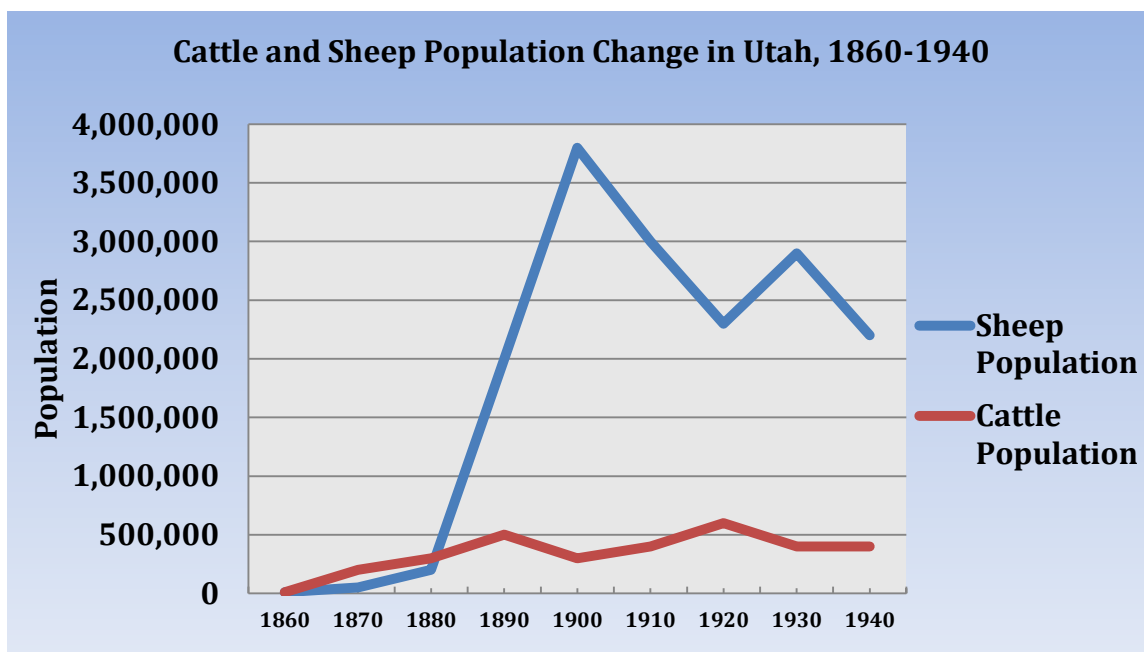


Figure 14. Cattle and sheep population change in Utah, 1860–1940.

The availability of public rangelands, access to railroads, and good prices at market made ranching an enticing business venture. Even before the sheep boom of the 1890s, Mormon settlers recognized the potential of Utah’s landscape to raise cattle and sheep. In an 1848 letter to British converts to Mormonism still living in England, Parley P. Pratt wrote that in the Salt Lake Valley, “The supply of pasture for grazing animals is without limit in every direction. Millions of people could live in this country and raise cattle and sheep to any amount.”²³ Brigham Young, like Pratt, saw ranching as a worthy

²² Albert F. Potter Diary, see dates July 6,7,8, 18, 1902.

²³ Journal History of the Church microfilm, September 5, 1848 available from Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

endeavor and wasted no time starting a church-sponsored livestock business. A few months after arriving in the Salt Lake Valley in July 1847, Young sent men to purchase trapper Miles Goodyear's small cattle ranch on the Weber River near Ogden.²⁴ With Goodyear's cattle, and with livestock contributions from other church members, the church herd grew. Within a decade there were enough cattle grazing in the Salt Lake area that forage became scarce. Young sought new pastures and found them in Cache Valley. Motivated by glowing reports of lush grasses near the Bear River Range, Young sent a group of men to winter some 2,000 church-owned cattle in Cache Valley in 1855. The ranch hands, led by Bryant Strigham, worked to build fences and shelters and cut native grasses to feed the stock during the winter. The ranch, which Stringham's men named "Elkhorn" (presumably because of the elk they saw in the area), proved to be a disaster. The winter of 1855 was one of the worst on record. Heavy snows buried forage and made it difficult for the cattle to move. The hay Stringham's men cut quickly ran out and most of the cattle froze to death or starved before they could be moved over the mountains to Box Elder and Ogden Valleys.²⁵ The Elkhorn Ranch disaster taught settlers a thing or two about Cache Valley winters, but it did not discourage the growth of Mormon-owned livestock operations throughout Utah. By the 1890s, most Mormon settlers owned livestock and a growing number of savvy Utah ranchers became wealthy running cattle and sheep on Utah's public ranges.

Cache Valley sheepman William H. Smart, is a fine example of how the livestock industry, if played correctly, could make a man wealthy very quickly. In 1890 Smart

²⁴ Church History In The Fullness Of Times Student Manual, (2003), 337–351
https://www.lds.org/manual/church-history-in-the-fulness-of-times-student-manual/chapter-twenty-seven-establishing-a-refuge-in-deseret?lang=eng#4-32502_000_027 (accessed March 17, 2013).

²⁵ Woodfield, "The Initiation of the Range Cattle Industry of Utah," 33-34.

invested \$300 in his brother's infant sheep business. By 1893 he owned a band of 1,000 sheep worth \$2,360. By the spring of 1895 Smart's 1,000 sheep increased to 5,852. At this point Smart left his job as a schoolteacher to pursue the sheep businesses full time. In 1897 Smart ran a total of 35,755 sheep spread out across the Bear River Range, Snake River Range, and Teton Basin.²⁶

Hunting

By the turn of the 20th century, herds of elk, deer, antelope, and mountain sheep hunted by Shoshone and observed by fur trappers and the first Mormon settlers of Cache Valley, had disappeared. Although several factors contributed to declining big game herds, the foremost factor was overhunting by settlers. Overhunting and declining big game populations were not unique to the Bear River Range; this was the pattern across all of Utah. In 1899 a frustrated John Sharp, Utah's first Fish and Game Warden, reported to the state legislature that big game herds across the state were in serious trouble. He noted that deer, elk, antelope, and mountain sheep were nearly gone, and that Indians, poachers, and market hunters were responsible.²⁷ Although Indians, poachers, and market hunters all contributed to declining big game numbers in Utah, each group did not share blame equally. By the 1890s Indians had been removed from most areas of the state except the Uinta Basin, making it unlikely that they could have done much hunting except near the Uinta Range. In Cache Valley the 1863 Bear River Massacre had devastated the Shoshone living in northern Utah. Those who survived either voluntarily moved north to

²⁶ W. B. Smart, *Mormonism's Last Colonizer: The Life and Times of William H. Smart* (Logan: Utah State University Press, 2008) 80-83.

²⁷ John Sharp, "Report of the State Fish and Game Warden for the years 1897 and 1898," (*Deseret News*, Salt Lake City, 1899), 22.

Fort Hall Reservation in Idaho or were resettled to the small Washakie Reservation North of Tremonton, Utah.²⁸ Rather than Indians, it was the growing number of Mormon poachers and market hunters who caused the decline of big game numbers. State historical records indicate that big game species were hunted in almost all areas Mormons settled, and that selling the meat and hides of mule deer was particularly popular.²⁹ Albert Gardner, resident of Huntsville, Utah, just south of Cache Valley, told an interviewer in 1941 that as a young man he often hunted and sold venison to bring in extra income. He reported that a good “deer ham” would bring nine cents per pound and that the meat and hides were sold to a company in Ogden, which shipped them to miners in Montana.³⁰

In the early 1890s sportsmen in Cache Valley were concerned about the decline of big game on the Bear River Range. During the summer of 1894, sportsmen met in Logan to form what was perhaps the first wildlife conservation group in Utah. They gave themselves the name “Sportsman’s Club of Cache Valley,” and their objective was to “prevent the wholesale and wanton destruction of fish and game.”³¹

The efforts of the Sportsman’s Club of Cache Valley were complimented by a revised state fish and game law passed earlier that year that addressed in earnest issues of poaching and overhunting for the first time, and attached fines and penalties for those

²⁸ For a history of Shoshone in Cache Valley see Scott R. Christensen, *Sagwitch: Shoshone Chieftain., Mormon Elder, 1822-1887* (Logan, Utah: Utah State University Press, 1999) and John W. Heaton “No Place to Pitch their Teepees”: Shoshone Adaptation to Mormon Settlers in Cache Valley, 1855-70,” *Utah Historical Quarterly* 63 no. 2 (Spring 1995)

²⁹ John Sharp. *Third Biennial Report of the State Fish and Game Commissioner for the years 1899 and 1900* (Salt Lake City: 1901), 40.

³⁰ Albert Gardner, Interview, May 12, 1941. Coll MSS 18 Box 2 Folder 35. Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

³¹ “Constitution and By-Laws,” *The Journal*, July 11, 1894.

who broke it.³² The club's duties soon included helping enforce the law. In something akin to being deputized, club members who were in good standing with the community and paid a 50-cent membership due were given permission by the county judicial system to conduct investigations and search out lawbreakers. The county courts even agreed to give the club one-fourth of the recovered fine if they helped in a successful conviction.³³

The winter after the club's formation (1894–95), members patrolled the canyons of the Bear River Range in search of poachers. One of the volunteers was Nicholas W. Crookston, who also happened to be the game commissioner for Cache County. In his 1895 report to the Territorial Legislature, Crookston wrote that the Sportsman's Club (which had then grown to 100 members) was greatly assisting with enforcing the new law, and that the "sentiment of the people is growing in favor of the enforcement and protection of game."³⁴ That winter, the Sportsman's Club assisted in seven arrests and five convictions.³⁵ By summer 1895 Sportsman's Club members moved from patrolling the canyons to watching over rivers. The revised law allowed fishing from June 15 to February 15 but residents were accustomed to dropping a line whenever they wanted. Club members set out in April and May, as weather warmed up, to make sure no illegal fishing took place before the season opened. The peer pressure created by the Sportsman's Club seems to have done some good, for in June 1895, the local newspaper in Logan ran the following article:

The organization of our club of local sportsmen was well conceived and has already borne excellent fruit. Lawbreakers no longer feel secure in the fastness of the mountains or the seclusion of the canyons. Those who happened on the

³² "Fish and Game Law," *Deseret News*, March 16, 1894.

³³ "Constitution and By-Laws," *The Journal*, July 11, 1894.

³⁴ "Fish and Game Reports," *Deseret News*, January 16, 1895.

³⁵ *Ibid.*

fisherman with dynamite in other days and passed him by with a smile, now become his prosecutors. Those who formerly let the unlawful slayer of game go his way unmolested now expose him in his crime. The club has such extensive membership that violators of the law can scarcely escape its rules.³⁶

Despite its apparent success, the Sportsman's Club of Cache Valley did not fix the problem of overhunting and declining wildlife on the Bear River Range.

Two challenges hindered their success. First, it was time consuming and very difficult to enforce the laws, even among their own membership. In August 1895, for example, newspapers noted that club volunteers were unsuccessful in stopping hunters from slaughtering sage grouse in Logan Canyon.³⁷ Also, that same summer an unnamed member of the club was caught illegally buying trout.³⁸ Second, the laws dealing with fish and game conservation were not very good to begin with. The wording in the laws provided loopholes for market hunters who continued to buy and sell wild game, penalties were too weak for offenses, and in general the law failed to address other indirect causes of wildlife decline.

In response to perceived problems, the club drafted a set of amendments to the 1894 law. Their suggested changes included requiring owners of ditches and canals to install fish screens, requiring sawmill owners to stop dumping sawdust in streams, regulating big game and waterfowl hunting more effectively, and most importantly, requiring legislators to address the technicalities in the law that allowed market hunters to transport and sell game out of state.³⁹ For all the laws, they recommended that the penalties and fines be increased. During January 1896,

³⁶ "The Sportsman's Club," *The Journal*, June 18, 1895.

³⁷ "Local Points," *The Journal*, July, 25, 1895 and August 8, 1895

³⁸ "Some Do It," *The Journal*, June 18, 1895.

³⁹ "Amendments," *The Journal*, January 21, 1896.

club president Thomas H. Lewis and treasurer N.W. Haws traveled to Salt Lake where they met with concerned sportsmen from other areas of the state and presented their amendments to state legislators.⁴⁰

Records documenting the individuals and authorities with whom Lewis and Haws met and what they discussed are not available. However, it is likely that one person they spoke with was newly appointed State Fish and Game Warden John Sharp. Sharp must have been impressed with what the Sportsman's Club of Cache Valley was doing, for the next year he created "The Utah State Fish and Game Protective Association," an almost identical twin of the Sportsman's Club. This group's purpose, (similar to the Sportsman's Club), was to "aide the state and county officers in the enforcement of the fish and game law, to spread information relating to fish and game matters, and secure, if possible, among the people generally, a more widespread interest in favor of development and protection of natural resources."⁴¹ The Association included sportsmen from nearly every county in the state, and absorbed the Sportsman's Club of Cache Valley.⁴² Little is known about the activities of the Utah State Fish and Game Protective Association. However, as late as 1902, the association, which was listed in the United States Department of Agriculture Yearbook, was still an official "state organization" run by sportsmen.⁴³

⁴⁰ "Local Points," *Utah Journal*, January 28, 1896.

⁴¹ John Sharp, *Report of the State Fish and Game Warden for the years 1897 and 1898*, 35.

⁴² *Ibid.*, 36. The last reference to the Sportsman's Club of Cache Valley shows up July 7, 1896 in *The Journal* suggesting that the Cache Valley club was absorbed by the new statewide club. Moses Thatcher and Sportsman's Club president Thomas H. Lewis appear on the new Utah State Fish and Game Protective Association roles.

⁴³ *1902 Yearbook of the United States Department of Agriculture* (Washington, D.C.: Government Printing Office, 1903), 688.

The establishment of a statewide club to enforce the laws and promote conservation was a step in the right direction and appears to have pressured legislators to make amendments to the 1894 law. In 1897 a new law was enacted which addressed most of the concerns put forth by the Sportsman's Club of Cache Valley, especially those protecting fish from being sucked into canals and making it illegal to transport *any* wild game from the state.⁴⁴ However, even with more people on patrol and better laws, big game numbers continued to decline. The problem was more complicated than sportsmen realized. Big game herds were being attacked on multiple fronts. Habitat loss, competition with livestock, severe winters, in addition to hunting, were simply more than big game herds could handle.

There was not much sportsmen could do about the weather or the livestock situation in the state, so they focused on catching poachers. State game warden Sharp realized however, that even with poaching eliminated, big game herds could not sustain legal hunts. Instead of laws regulating poaching and shorter hunting seasons, big game needed laws outlawing hunting altogether. In 1897 Sharp proposed a moratorium on all big game hunting for at least 6 years to allow populations to recover.⁴⁵ His recommendation, however, fell on deaf ears. After a year of inactivity on the part of elected officials, Sharp censured the legislature for not doing more to protect the state's fish and game. He accused them of consigning his conservation recommendations to the "back seat in the waste

⁴⁴ "Fish and Game Law," *Deseret News* May 14, 1897.

⁴⁵ John Sharp, *Report of the State Fish and Game Warden for the years 1897 and 1898*, 22.

basket” and of pandering to the interests of “market dealers, market hunters, and fishermen.”⁴⁶

In 1907 the state finally decided that a license should be required to hunt big game, but by then it really did not matter. Dennis D. Austin, biologist and historian of mule deer in Utah writes, “In 1907 only a few hunters participated in the hunting of big game, primarily because the number of big game animals available in Utah was very small.”⁴⁷ The failure of big game conservation hit home for members of the Sportsman’s Club of Cache Valley when poachers shot the last five elk native to the Bear River Range in Card Canyon in 1898.⁴⁸

Environmental Change

The lumber boom of the 1870s had been a boon for the economy of Cache Valley, but its imprint on the Bear River Range had not. Logging caused a series of changes to the land. First, wherever loggers went they removed trees from previously forested areas, destroying habitat and exposing mountain slopes to increased erosion. Loggers left slash (unused tree wood) to dry on the forest floor, creating tinderbox conditions. Consequently, throughout the 1870s and 1880s, fires burned across the Bear River Range.⁴⁹ When government grazing officer Albert F. Potter (who is discussed in Chapter 4 in detail) surveyed the Bear River Range in 1902, he repeatedly noted burned and destroyed forests in his diary. In 1906

⁴⁶ Ibid., 23.

⁴⁷ Dennis D. Austin, *Mule Deer: A Handbook for Utah Hunters and Landowners* (Logan, Utah: Utah State University Press, 2010), 13.

⁴⁸ Norman V. Hancock, “A Management Study of the Cache Elk Herd” (Master’s thesis, Utah State Agricultural College, 1955), 15.

⁴⁹ For more on the history of fire on the Bear River Range see Bird, “A History of Timber Resource Use,” 45-59.

government surveyor L.L. White estimated that three-fourths of the timbered lands had been burnt over in the past 20 years.⁵⁰ In some cases, forest fires were accidental. In other cases, stockowners set fires hoping to improve forage conditions by clearing mountainsides of slash. The number, intensity, and area of forested and rangelands burned during the 1870s and 1880s far exceeded anything in the range's recent past or since.⁵¹



Figure 15. “Total destruction of forest by fire after cutting, head of Beaver Creek, Southfork.” Photo by Albert Potter, July 10, 1902. Photo courtesy of United States Forest Service, Region 4 Office, Ogden, Utah.

⁵⁰ Bird, “A History of Timber Resource Use,” 47.

⁵¹ Mormon settlers make no mention of forest fires until the late 1870s. When the United States Forest Service began managing the Bear River Range in 1903 the number of forest fires decreased.

Ecologists have shown that naturally occurring fires are a vital part of forest ecosystem reproduction and health, and that fires help to maintain and promote biodiversity. Nancy Langston states that fire, more than anything else, determines the history of a forest.⁵² A forest's history, or the ways it functions over time, and what types of life it supports, is greatly a product of the trees and plant life that are found there. When fire ravages a landscape frequently and with high intensity, it disrupts and changes important patterns of tree dispersion and soil stability, altering the history of that landscape. The fires that tore through the Bear River Range during the 1870s and 1880s disrupted important processes of plant reproduction and destroyed ground cover across the range.

An upsurge in the livestock industry followed the lumber boom on the Bear River Range. The millions of cattle and sheep introduced from 1890 to 1900 severely overgrazed the Bear River Range, adding to the damage caused by logging and forest fires. Native plants struggled to germinate as livestock herds ate everything in their path. Climate records indicate that the later part of the 1890s and early 1900s were dry, making it particularly difficult for forage to regrow on burned and heavily grazed lands.⁵³ As a result, in many places native plants and grasses disappeared. In 1910 United States Forest Service plant ecologist Alfred E. Aldous reported in his survey of the Cache National Forest that sagebrush and occasional bunches of serviceberries dominated the foothills of the Bear River Range, confirming what ecologists Pickford and Cottam

⁵² Nancy Langston, *Forest Dreams, Forest Nightmares: the Paradox of Old Growth in the Inland West* (Seattle: University of Washington Press, 1995), 30.

⁵³ Western Regional Climate Center, "Monthly Total Snowfall (Inches) Logan, Utah State University, Utah 1892-1910." <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?utloga> (accessed March 18, 2013).

would later describe as a transition in plant succession from grassland to dry desert landscape (see Chapter 2).⁵⁴



Figure 16. Hardware Ranch in 1899 (left) and 2012 (right). Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

By the turn of the 20th century, the rivers and streams originating in the Bear River Range were declining. Beginning in 1890, mountain snowpack melted much earlier in the spring causing flooding, soil erosion, and dangerously low river levels during late summer and fall. Of this problem Cache Valley historian Michael W. Johnson stated:

The effects of this destruction [deforestation, overgrazing] were felt not only in the mountains but were visited on the valleys below. Mountain snowmelt previously had been held back by groundcover, which had allowed it to sink into the soil and recharge the groundwater. Now it ran off quickly in the spring leaving irrigators without water in late summer.⁵⁵

⁵⁴ Alfred E. Aldous, "Cache Studies Ecological Report of the Cache National Forest, October 27, 1910" p. 4, located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

⁵⁵ Michael W. Johnson, "Whiskey or Water: A Brief History of the Cache National Forest," *Utah Historical Quarterly* 73, no. 4 (2005): 330.

Declining rivers prompted Utah State Agricultural College professor and Cache Valley local George L. Swendsen to keep stream-flow records for both Logan River and Summit Creek. When chief grazing officer Albert F. Potter visited Logan to survey the Bear River Range in 1902, Swendsen had valuable data linking logging and heavy grazing on the Bear River Range to drying rivers in Cache Valley.⁵⁶



Figure 17. Logan River 1900 (left) and 2012 (right). Photos courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Over the course of only a few decades, Mormon settlers had dramatically transformed the landscape and ecology of the Bear River Range. The drying of

⁵⁶ Albert Potter Diary, July 18, 1902.

local rivers came as the climax to decades of unchecked resource use. The following chapter discusses the ways in which settlers attempted to deal with the damaged range and manage its limited resources.

CHAPTER 5

ATTEMPTED RESTORATION

In his article “Stewardship and Enterprise: The LDS Church and the Wasatch Oasis Environment, 1847–1930,” Utah historian Thomas G. Alexander challenges Dan Flores’s claim in “Zion in Eden: Phases of the Environmental History of Utah” that Mormon settlers were “bewildered” by the mountain landscapes and climate they encountered in Utah, and as a result, did not fully understand the cause-effect relationship between their actions and environmental decline. Alexander contends that rather than being ecologically/environmentally ignorant, Mormon settlers, for their day, had a broad understanding of landscape ecology, plant succession, and the effects of overgrazing and logging on sensitive watersheds. He argues that the environmental degradation that occurred throughout Utah (Cache Valley included) was the product of a people who chose to set aside their knowledge, as well as their religious tenet of land stewardship, to engage in environmentally damaging practices in search of profits.¹

This chapter addresses three concerns. First, I find reason to doubt Alexander’s argument that Mormon settlers, especially in Cache Valley, really understood the land they damaged. By analyzing the community debate in Cache Valley surrounding the creation of the Logan Forest Reserve and Albert F. Potter’s survey of the Bear River Range, I argue that as a collective community settlers were quite bewildered by the

¹ Dan L. Flores, “Zion in Eden: Phases of the Environmental History of Utah,” *Environmental Review* 7, no. 4 (December 1983): 30. Thomas G. Alexander, “Stewardship and Enterprise: The LDS Church and the Wasatch Oasis Environment, 1847–1930,” *Western Historical Quarterly* 25, no. 3 (October 1994): 344.

climate and environment they encountered. Second, keeping in mind the settlers' lack of understanding, I discuss the reasons why, following the creation of the Logan Forest Reserve in 1903, forest users and forest managers failed to quickly restore profitability to the Bear River Range. I contend that stockowners, in particular, failed to see the need for grazing regulations and actively sought to ignore or beat the regulations established by forest managers. And finally, I discuss why forest managers' prescribed treatment of simply reducing the number of livestock allowed on the reserve was not sufficient to address the complex ecological problems created by decades of resource overuse.² Despite changing attitudes and management practices, by 1910 the Bear River Range was not showing signs of recovery and the Logan River was still running low. In the end, the range had changed too much and too quickly for an easy fix.

Water, Livestock, and the Forest Reserve Debate

Mormon settlers' lack of understanding regarding the relationship between deforestation, overgrazing, and watershed health resulted in water shortages in Cache Valley. As discussed in Chapter 3, by 1900 rivers originating from the Bear River Range had begun to dry up. By 1902 the situation was desperate. After fall harvest, county commissioners published in the local newspaper *The Journal* that they were "alive to the needs of their constituents" and were willing to take action in "protecting and maintaining the water supply of the county."³ Utah historian Michael W. Johnson notes that the shortage was a crisis for both valley farmers and municipal water users who

² "Cache National Forest Historical Documents, 1903–1950," located in the Scott Bushman Collection, Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

³ "For a Reserve," *The Journal*, February 6, 1902.

depended on canyon streams to fill city pipes and irrigation canals.⁴ The lack of water created tension between farmers, townspeople, businessmen, and forest users (i.e., stockmen, loggers) who all wanted the water problem fixed, but could not agree on what to do.

Concerns over water and what to do about water shortages were not unique to Cache Valley. Mountain watersheds across the state were in decline. In places where heavy logging and grazing persisted, stream flows decreased. In 1897 residents dependent on the Provo River and Weber River broke new ground when they decided to petition the federal government to protect the Uinta Mountains in eastern Utah.⁵ The creation of the Uinta Forest Reserve, Utah's first, was later followed by the Fish Lake (1899) and Payson (1901) reserves in southern and central Utah. By 1902 forest reserves appeared not only in Utah, but across the western United States as greater numbers of settlers saw federal intervention as a good way (or the only way) to address declining watersheds. The forest reserve idea, supported by a small but growing number in Utah, was an outgrowth of the conservation and progressive movements in the United States. In 1891 Congress authorized President Benjamin Harrison to protect forested lands by setting them aside as public reserves. The "Forest Reserve Act" was subsequently used to create a number of reserves in the west, Yellowstone being the first in 1891.⁶

In mid-February 1902 Logan merchant Lyman Martineau, Utah State Agricultural College professor George Swendsen, and civil engineer Edward Hansen sponsored a

⁴ Michael W. Johnson, "Whiskey or Water: A Brief History of the Cache National Forest," *Utah Historical Quarterly* 73, no. 4 (2005): 330.

⁵ Shaun R. Nelson, "History of the Uinta National Forest: A century of Stewardship," http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsem_035417.pdf (accessed February 8, 2013).

⁶ Johnson, "Whiskey or Water," 332-334. Charles S. Peterson, and Linda Speth. *A History of the Wasatch-Cache National Forest* (Logan, Utah: Utah State University, 1980).

community meeting to address water concerns in Cache Valley. These progressive, conservation-minded individuals were aware of the unhealthy condition of the Bear River Range and proposed that federal land protection in the form of a forest reserve was the solution to Cache Valley's water problems.⁷

Even before the idea of a forest reserve on the Bear River Range was presented to residents in February 1902, locals in Cache Valley and across the state had formed strong opinions on the issue. Generally stockmen and those who used timber resources did not like forest reserves because of the restrictions placed on grazing and logging that came with them. Rural farmers supported the idea of better water management but, in general, were weary of federal interference and resisted the establishment of reserves. And a small but growing number of conservation-minded, urban intellectuals and businessmen supported reserves, arguing that forests and rangelands should be protected for both practical and aesthetic reasons.

Out of the statewide debate over forest reserves emerged a powerful opposition led by John C. Mackay. A successful stockman and Utah House representative, Mackay held significant power and wielded it to promote an anti-fed, pro-livestock agenda. His views reflect how stockmen felt, in general, about forest reserves politically, as well as how they understood mountain landscape ecology. In 1899 Mackay was the keynote speaker at the Denver National Livestock Convention where he argued adamantly against forest reserves. He claimed they were the creation of East Coast, American Forestry Association (AFA) fanatics who were out of touch with western interests and lacked

⁷ Johnson, "Whiskey of Water," 334.

knowledge about how mountain landscapes actually functioned.⁸ MacKay argued that the AFA folks had it all wrong. Their claim that deforestation and overgrazing decreased a water supply was simply untrue. Citing himself mostly, Mackay argued that snow melted first in timbered areas, proving that trees did not help in water conservation, but hindered it. He said it was open, grazed areas, where snow was allowed to drift that provided water in late summer. Sheep, he argued, were not foreign invaders as the AFA claimed, but a “natural fit” for the desert and mountain ranges of Utah because they ate “a greater variety of browse and vegetation than any other animal.”⁹ For MacKay, sheep consuming groundcover was not a problem either: “The eating of the grass and browse in the timber was a safeguard against forest fires” and the presence of large herds on the mountains “fertilized the grass.”¹⁰ As for flooding and erosion, which the AFA blamed on livestock, MacKay claimed that it was not the fault of the sheep or loss of timber, but the lack of reservoirs to catch the water. In a final jab at eastern AFA intellectuals and the fledgling United States Division of Forestry MacKay stated:

Mr. Fernow¹¹ and others show an animosity towards their fellow citizens, whose interests are directly affected by these forest reserves, and impute to them ulterior motives for protesting. It seems as though they would like to establish a feudal system in America; have large tracts of land set apart for reserves so that some idealist, scientific expert or privileged person might view dame nature in its primitive state-perchance fish and hunt therein.¹²

Mackay’s position was clear: deforestation and grazing did not negatively affect mountain environments, water could be easily stored by building more reservoirs, thus

⁸ The American Forestry Association was established in 1875 and is the oldest forest conservation group in the United States.

⁹ “Cattlemen vs. The Sheepmen,” *Deseret Evening News*, January, 26, 1899.

¹⁰ *Ibid.*

¹¹ Bernard Fernow was trained as a forester in Germany and became the U.S. Division of Forestry chief in 1886.

¹² *Ibid.*

there was no need to regulate logging and grazing and no need for federal involvement in the form of forest reserves.

Not everyone who read MacKay's speech, which was reprinted around the country and by the *Deseret Evening News* in Utah, agreed with his conclusions. The AFA printed a rebuttal in the February 1899 edition of *Forester* magazine.¹³ And in Utah, members of the relatively new Utah Forestry Association (UFA) representing the pro-forest reserve camp in the state responded with a rebuttal of their own.

Formed in 1893 by retired University of Deseret (later University of Utah) president John R. Park, UFA excelled at mobilizing intellectuals from around the state to push for conservation of Utah's forested lands. The first association of its kind in the state, UFA operated on the premise that the general public was unaware of the "relationship between a steady water flow in the streams and the conservative influence of forests."¹⁴ The group called for regulations on grazing and logging, forest education programs for youth, and general conservation practices years before anyone else. As a political force, the association was influential in promoting the Uinta Forest Reserve in 1897 and helping inform the public of issues related to logging, overgrazing, and watershed health in general.¹⁵

Watershed health was just what UFA members attacked MacKay on, challenging both his motives and understanding of mountain landscape ecology. Their rebuttal argued:

It has generally been supposed that forests conserve the water supply, prevent the rapid melting of the snow and ice of winter, retard the flow of the rain from the

¹³ "Opposition to Reservation Policy," *The Forester* 5 no.2 (February 1899): 34-36.

¹⁴ John R. Park, "Forestry in Utah," *Utah University Quarterly* 1 (1895): 34.

¹⁵ *Ibid.*, 38.

hillsides in spring and summer, and, by absorbing it into the ground, retain much of the rain or melting snow water that would otherwise quickly flow off from the surface of bare ground. Forests and their undergrowth are supposed to cool the atmosphere, increase the rainfall, and prevent, in a large measure, the disastrous spring and summer floods, which have of late years become prevalent in many parts of the country. Such is the belief of the European and American boards of forestry, and the well-known teaching of scientific textbooks. Mr. Mackay appears to claim that this is not correct. Does a bare hill retain and absorb the rain and snow more than a wooded hill, with undergrowth?¹⁶

In a sarcastic tone, the UFA writer charged that if MacKay was right about landscape ecology in Utah and the forestry societies and scientific textbooks were all wrong, then a debate was worth having. If not, then every effort should be made to “preserve our present forests from destruction, and to extend by a rational system of forestry the planting and rearing of forest trees.”¹⁷ Not forgetting MacKay’s insult directed towards scientists and intellectuals who he claimed only wanted to protect forests in the name of “dame nature in its primitive state,” the UFA writer reminded readers that God, not man, was the creator of forests, and that dame nature was more than enough to justify conservation:

Mr. Mackay opposes the setting apart of large reserves in which “the idealist or scientist may view dame nature in its primitive state” yet we think this very sentiment, which causes many people to desire forest reserves for this purpose alone, is one of the great arguments in favor of forest preservation and culture. “The groves were God’s first temples,” says Bryant; and while to the anti-idealist there may be something absurd in Tennyson’s conception of the forest, where “In crystal vapor everywhere, Blue eyes of heaven laughed between; And, far in forest deeps unseen, The topmost elm-tree gathered green from draughts of balmy air.” Yet to us this sentiment of the average person’s natural love for a forest is one the strongest reasons why some forests should be preserved in all their primitive beauty and with their natural features unmarred by the hand of man or the ravages of domesticated animals.¹⁸

¹⁶ “Forests and Water Supply,” *Deseret Evening News*, January 27, 1899.

¹⁷ *Ibid.*

¹⁸ *Ibid.*

The debate did not end there. A few months later, not wanting to give the last word to the UFA, MacKay published his own rebuttal. This time he had lots of numbers and data to support his claims, but his argument was inherently the same: logging and grazing did not harm landscape or ecology. He contended, “Stock are not generally within timber belts after the 1st of October in each year; the rains in the fall, the snow in the winter, and the frost leaving the ground in the spring obliterate all traces of stock, so that the ground is in as good condition to absorb moisture as if stock had never been there.”¹⁹ In the end, MacKay argued that forests should not be protected because they were “of far greater value and importance to the citizens for commercial purposes than they can be to remain in their primitive state.” As a businessman and, more importantly, a religious man, he claimed it was his duty to follow “the great injunction of God in the beginning, ‘Be fruitful and multiply and replenish the earth; and subdue it.’”²⁰

The competing political and ecological worldviews represented by MacKay and UFA were no secret to Cache Valley residents who gathered in the County Courthouse February 15, 1902, to debate whether the Bear River Range should be set aside as a forest reserve. As the conversation took shape, a divide formed between the more conservation-minded, urban, intellectuals living in Logan and rural farmers and stockmen. At the meeting, Professor George L. Swendsen of the Utah State Agricultural College who had long kept record of declining stream flows in Cache Valley, spoke in favor of a forest reserve on the Bear River Range. He argued that sheep destroyed the underbrush and trampled the earth, making it impossible for moisture to replenish mountain springs. He reminded the group that the Logan River was “lower than it has

¹⁹ “Timber Belts and Moisture,” *Deseret Evening News*, March 14, 1899.

²⁰ *Ibid.*

ever been.”²¹ Although Swendsen based his argument on scientific data, it did not impress the group of farmers and stockowners. A farmer named Mr. Hobbs, from Benson, countered that the underbrush and other forage on the range should be “destroyed as it scratched his pants when he got out wood.” As for the creation of a forest reserve Hobbs shouted, “A timber reserve is a humbug.” To fix the water shortage he declared, “Prayer is the thing, just straight prayer and faith.”²² Another farmer, Mr. Hillyard from Smithfield followed. His concerns were not about the health of the range, but about whether he would be allowed to get free firewood if the reserve was created. Hillyard argued that there was not necessarily a water shortage or a need for forest users to change their ways; rather, forest users should build more reservoirs to store the water. George Bell, a stockowner, spoke next. He was against the reserve, plain and simple. To balance the discussion Brigham Young College president James Henry Linford argued for the reserve, reminding the group of the danger to public health that resulted from having large herds of cattle and sheep constantly grazing next to canyon streams.²³

Although no one ever mentioned John C. MacKay or the UFA by name, their philosophies were evident in the debate. Stockmen and rural farmers opposed the reserve while urban community elite (merchants, city leaders, and educators) supported it. Finally, Logan City postmaster Jedidiah Blair tipped the scales in favor of the reserve when he reminded stockmen and farmers that if they failed to act they might lose access to the mountains entirely:

You can do one of two things gentlemen, either take this land as a timber reserve and thus preserve it for the public, or let it remain as it now is and have it

²¹ “For a Reserve,” *The Journal*, February 18, 1902.

²² *Ibid.*

²³ *Ibid.*

purchased by private individuals, then you will have a private reserve, upon which no citizen will dare to venture without permission. I have a brother who is a large owner of sheep and he is now negotiating for the purchase of a large tract of land in Logan Canyon. There are scores of other cattlemen who have done, or are contemplating doing, the same thing. What do you want? A public reserve with pure water and a beautiful canyon, or a private reserve, impure water, and mountain deserts.²⁴

After Blair's speech those in attendance cast votes and an "almost unanimous" decision was made to place the Bear River Range under federal protection.²⁵

Cache Valley's conservation-minded intellectuals achieved their goal, but in a roundabout way. Swendsen, Martineau, and Hansen faced a determined group of local farmers and stockmen who were unable to see, and in some respects, refused to acknowledge the environmental problems facing the Bear River Range. In the end, it was not conservation, public health, or a familiarity with regional ecology or a strong sense of land stewardship that brought the majority of farmers and stockmen to consensus in support of the reserve. Rather, it was the fear that if the Bear River Range failed to receive federal protection everyone but a few landowners would lose access to the range's resources. A few months later grazing officer Albert F. Potter arrived in Cache Valley on behalf of the federal government to survey the Bear River Range.

Albert F. Potter Rides the Range

Born in 1859 near the Sierra foothills in Ione, California, Albert F. Potter later moved to Apache County, Arizona, where he experienced range life firsthand by working with his uncle running cattle and sheep on public lands. After falling on hard times, Potter worked odd jobs until the late 1890s when he entered the sheep business again, this

²⁴ Ibid.

²⁵ Ibid.

time with much more success. By the turn of the century, Potter was the secretary of the eastern division of the Arizona Wool Growers Association, one of the West's most powerful livestock organizations. In June 1900 Potter met Gifford Pinchot who, at the time, was visiting Arizona to survey the state's rangelands. During their time together Pinchot convinced the 42-year-old veteran sheepman to enter government service as an expert grazing officer.²⁶

Despite his lack of formal training, Potter understood the problems and consequences associated with unregulated grazing better than most. His years in the livestock business taught him to identify overused rangelands as well as how to relate to stockmen. A close friend described Potter as one "whose foresight and ability to grasp the details of difficult problems and resourcefulness in every emergency made him stand out as a tower of strength."²⁷ When Potter arrived in Cache Valley, his inherent "westernness" and knowledge of the livestock business made him a favorite among locals who quickly saw him as one of their own.

Although Potter was sympathetic to forest and range users, he understood that the Bear River Range was in bad shape. In his diary, which he kept almost daily, Potter recorded his survey observations as well as his conversations with locals. His description of the Bear River Range reveals a landscape suffering from the effects of decades of

²⁶ David A. Prevedel and Curtis M. Johnson., "Beginnings of Range Management: Albert F. Potter, First Chief of Grazing, U.S. Forest Service, and a Photographic Comparison of his 1902 Forest Reserve Survey in Utah with Conditions 100 Years Later," United States Department of Agriculture, Forest Service, Intermountain Region, Ogden, Utah, R4-VM 2005-01, July 2005. p. 2; http://www.fs.fed.us/r4/publications/range/begining_acknowledgements_toc.pdf (accessed October 17, 2011).

²⁷ Ibid., 1.

overuse. References to burned forests, denuded slopes, and abundant sheep make up the content of many entries.

Potter's recorded conversations with locals also shed light on how Mormon settlers understood the landscape and its ecological processes. Potter noted that many forest users had very interesting perceptions of how the mountain landscape functioned. For example, on July 16, 1902, Potter met with a Mr. Montrose, sawmill owner and operator, who had for years made his living logging near Beaver Creek in Logan Canyon. Montrose informed Potter that the deforestation and water shortages that were common to the Bear River Range were not a problem. Potter recorded:

Met Mr. Montrose, sawmill man from Beaver Creek, who gave me some novel information. Said it took a 10-inch pine tree 12 years to grow, consequently there is no need of any alarm regarding a scarcity of timber. Said the timber did not increase water supply, as the snow banks were all outside of timber in canyons where it had a chance to drift. Said after a snowstorm the first place that the ground was bare was next to the trunk of the trees. Said sheep were the cause of water shortage; they tramp the ground up into a dust which is full of air and when the rain falls it does not soak into the dust but just runs off on the air bubbles in the dust, consequently the theory of packing the ground is all wrong as the water never gets through the air in the dust. Unfortunately Mr. Hatch, a Franklin sheep man, came up just at this moment and I did not get any more information from Mr. Montrose.²⁸

Montrose represented a typical Cache Valley Mormon settler: hard working and well meaning, but lacking a complex understanding of mountain landscapes. For Montrose and many others, knowledge of landscapes and ecologies was primarily based on what they could see. Dust on the ground and snow drifts on a grazed hillside explained the world sufficiently. Although based on real experiences and observations, settlers' "folk" knowledge of how mountain landscapes functioned was problematic because it did not include an understanding of the relationship between deforestation,

²⁸ Albert F. Potter Diary, July 16, 1902.

overgrazing, and watershed decline. Albert F. Potter, for example, noted his surprise that locals who were in favor of a reserve on the Bear River Range saw no problem with excessive logging or overgrazing. He wrote:

During the afternoon met a number of citizens who are favoring the establishing of the reserve. Said they wanted stock excluded from it so as to prevent them fouling the water; they think the health of the town is endangered by stock dying near the stream and by the pollution of the water by the manure and the urine. Denudation of the slope by timber cutting diminishing the water supply does not seem to alarm them. All evils being charged to stock.²⁹

Although many well-meaning Cache Valley settlers favored the reserve and had years of experience living near and using the resources found on the Bear River Range, they surprisingly lacked a basic understanding of the mountain environment and how their actions damaged it. The individuals Potter mentioned in his diary who had a real sense of the problems facing the Bear River Range were Swendsen, Martineau, and Hansen, the same conservation-minded intellectuals and businessmen who had brought him to Cache Valley in the first place.³⁰

By mid-July Potter finished surveying the Bear River Range and headed south. Over the next four months he traveled across Utah, surveying mountain landscapes and keeping a detailed record of what he saw. He covered some 2,000 miles (1,650 of which were on horseback), visited 42 towns, and spoke with dozens of individuals about designating forest reserves in Utah.³¹ In each new location, he encountered environmental decline and settlers who understood little about the mountain landscape they used. In the end, Potter recommended that large areas of Utah's mountains and timbered areas, including the Bear River Range, qualified for protection as forest

²⁹ Albert F. Potter Diary, July 3, 1902.

³⁰ See Albert F. Potter Diary entries for July 4th, 5th, and 18th.

³¹ Prevedel and Johnson, "Beginnings of Range Management," abstract.

reserves. A year later, on May 29, 1903, President Roosevelt signed Proclamation 500, creating the Logan Forest Reserve.³² Totaling 182,080 acres, the reserve consisted of roughly nine townships (today the lands covered by the Logan Ranger District) and stretched from Logan east to the Bear Lake Valley, and from Richmond south to the Left Hand Fork of Blacksmith Fork Canyon.³³ With regulations on logging and grazing now possible, concerned residents hoped to return water to streams, grass to depleted ranges, and trees to deforested slopes. However, forest managers charged with managing the new reserve quickly discovered that local forest users were slow to adopt the land management practices promoted by the federal government.

³² "Proclamation 500" by Theodore Roosevelt.

<http://www.presidency.ucsb.edu/ws/index.php?pid=69367> (accessed February 13, 2013).

³³ Richa Wilson, "On Horseback and by Highway: Administrative Facilities of the Wasatch-Cache National Forest, 1902-1960." Historic Context Statement and Evaluations Forest Service Report No. WS-05-731. p. 4. http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5053311.pdf (accessed March 18, 2013).

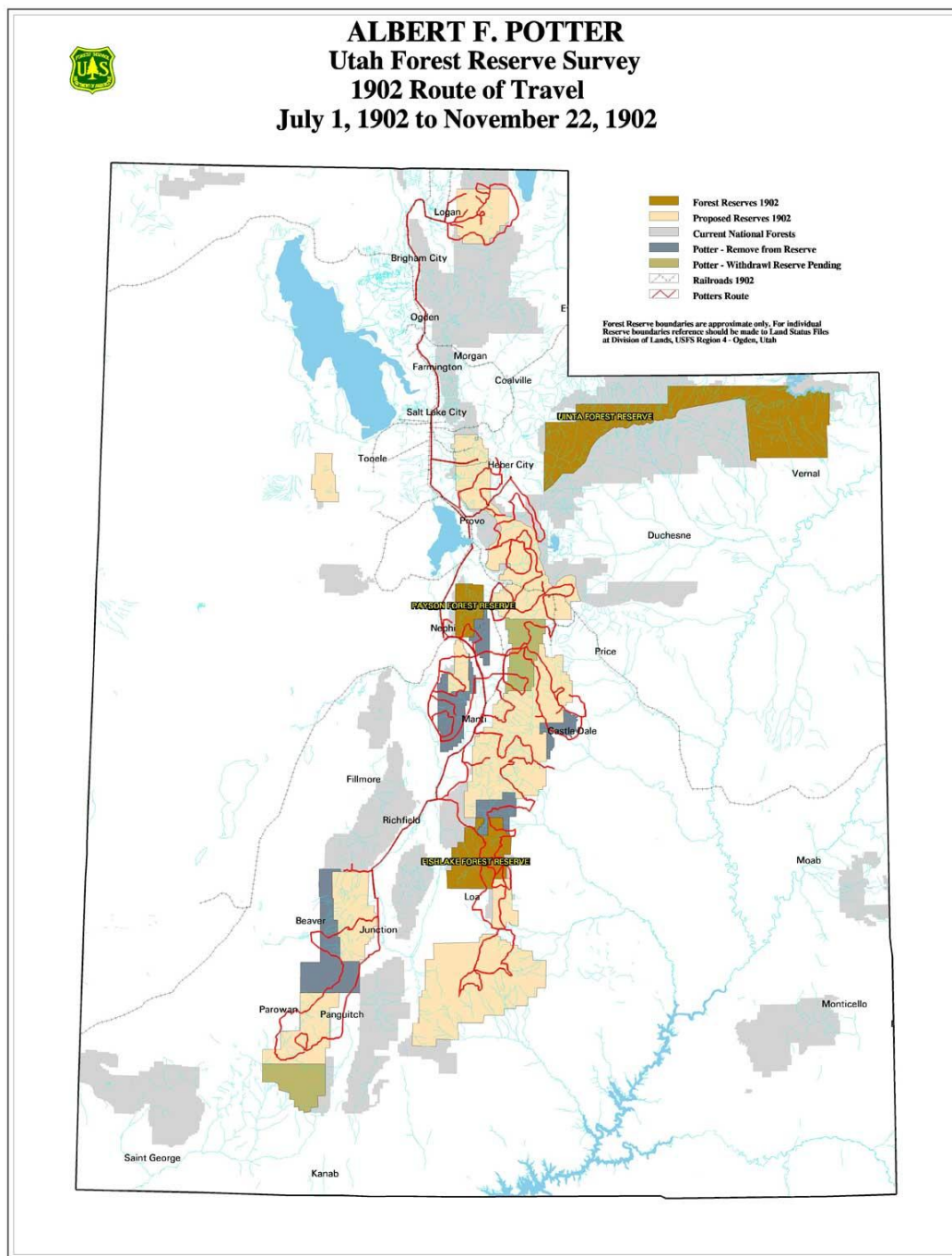


Figure 18. Albert F. Potter's route across Utah. Map available from <http://forestry.usu.edu/files/uploads/PotterRoute.jpg>.

Potter's Photos of the Bear River Range



Figure 19. “Burned spruce and fir forest, on tope of ridge on west side of Logan River Basin.” Photo by Albert F. Potter, July 8, 1902. Photo courtesy of Forest Service, Region 4 Office, Ogden Utah.



Figure 20. “Lake Gog, in head of Tony Lake showing Alpine Fir.” Photo by Albert F. Potter, July 9, 1902. Photo courtesy of Forest Service, Region 4 Office, Ogden, Utah.

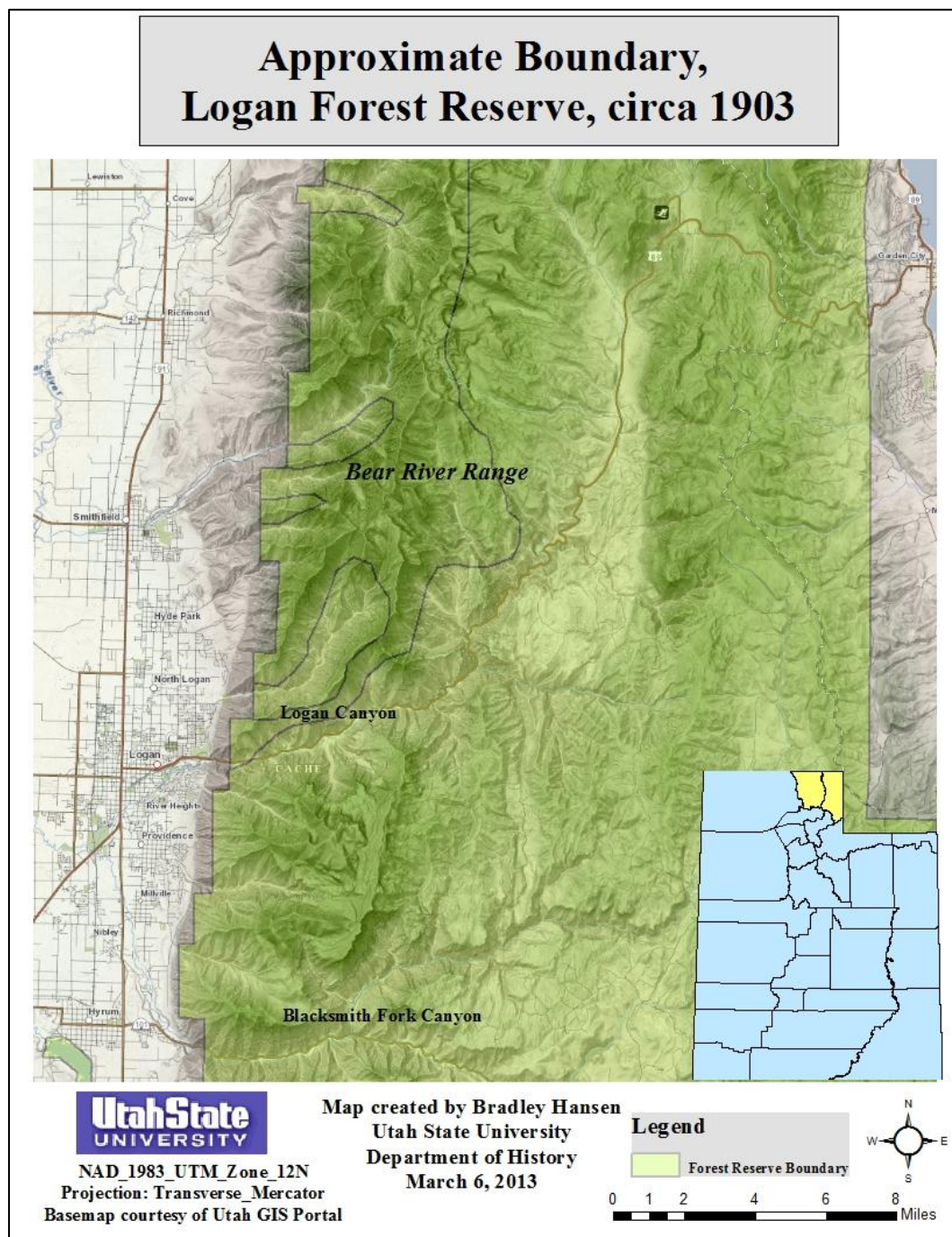


Figure 21. Map showing the approximate boundary of the Logan Forest Reserve, 1903. Map created by author.

Managing the Logan Forest Reserve, 1903–1910

During December 1905, residents living in Cache Valley bombarded John F. Squires, the newly appointed forest supervisor, with requests to cut down Christmas trees on the Logan Forest Reserve. Squires, a local himself and barber by profession, did not know what to do. He was caught between appeasing local interests and abiding by federal regulations, which prohibited the removal of any young trees from the reserve. In a pickle, Squires called on the local newspaper to publish an article addressing the Christmas tree problem. The writer informed readers that if Squires granted permission, some 4,000 young trees would be removed from the mountains near Cache Valley. This was contrary to federal regulations and the spirit of the reserve. To the amnesic settlers, the writer reminded:

Up to the establishment of the reserve, the great and magnificent forests were slaughtered. Majestic trees were felled and but one log taken, sometimes even that left to decay; cattle and sheep roamed at will and in countless numbers so that every vestige of undergrowth was destroyed. The Government designs to *save us from ourselves* and has wisely provided regulations governing the reserve. Mr. Squires is here to carry them out, and gives evidence that he will do so faithfully.³⁴

Saving the people from themselves was a complicated matter. The decade following the creation of the Logan Forest Reserve was fraught with challenges as forest managers attempted to work with forest users to address the problems facing the Bear River Range. Progress was slow for several reasons. First, Mormon settlers were often unwilling to follow regulations. Many believed there was nothing wrong with the range in the first place and scoffed at regulations that cut into their earnings. Second, Squires and those who followed him as forest supervisors and foresters were often sympathetic to

³⁴ “Keep off Forest Reserve,” *Logan Republican*, December 16, 1905. Emphasis added by author.

locals and did not fully enforce regulations. For example, in the case of the Christmas tree issue described above, Squires denied permits to cut on the reserve, but informed locals where they could obtain Christmas trees just outside the reserve boundaries in Millville and Blacksmith Fork Canyons.³⁵ This type of compromise represented how United States Forest Service (which was officially created in 1905) employees generally operated on the Logan Forest Reserve. Forest managers often worked with forest users in a give-and-take relationship that kept the peace, but did not really address the environmental problems facing the range. Third, forest managers erroneously believed that by simply reducing the number of livestock allowed on the reserve, the utility and profitability of the land would return. Environmental historian Marcus Hall has stated that forester managers in Utah initially worked to restore lands according to Anglo expectations. They attempted to bring back the utility of the forest rather than ecosystem biodiversity. In the end, their efforts failed as the environment, particularly the soil, had degraded too much for a quick fix.³⁶ And finally, the presence of unregulated state-owned grazing lands within the reserve, particularly the Franklin Basin Allotment, made attaining management goals and improving overall watershed health on the range a formidable challenge. By 1910 nearly a decade after the creation of the Logan Forest Reserve, most of the Bear River Range remained in a state of environmental decline and the water shortages that motivated the reserve's creation in the first place continued to affect Cache Valley residents.

³⁵ Ibid.

³⁶ Marcus Hall, "Repairing Mountains: Restoration, Ecology, and Wilderness in Twentieth-Century Utah," *Environmental History* 6 (October 2001): 585.



Figure 22. “Forester at work in Logan Canyon when night overtakes him far from his headquarters.” Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Reducing the number of livestock allowed on the Logan Forest Reserve was the first objective of forest managers. The concern in Cache Valley was water, and most residents believed that if the number of livestock allowed on the reserve was lowered, the water and range problems would work themselves out.³⁷ The number of cattle and sheep on the reserve dropped from roughly 150,000 observed by Potter in 1902, to 30,000 (25,000 sheep and 5,000 cattle and horses) by 1905.³⁸ The reduction of livestock on the Logan Reserve pleased community leaders in Cache Valley, but angered stockmen.

³⁷ Albert F. Potter Diary, July 3, 1902.

³⁸ *Logan Republican*, December 7, 1904.

Stockowners were angry for several reasons. First they believed it was their inherent right to graze public lands. Second, they contended that the range could support far more livestock than regulations allowed. And third, it was unclear who had first rights to grazing permits.

Back in Washington D.C., Gifford Pinchot, who had assumed control of the United States Forest Service in 1905, was aware of Utah stockowner's concerns. In 1905 he published *The Use of the National Forest Reserves* or "Use Book," the first how-to manual for foresters. The Use Book instructed forest supervisors on how to distribute grazing permits, deal with grazing and land disputes, and conduct better surveys of available resources. Under the philosophy of "multiple uses," the Use Book instructed foresters to work with stockmen to utilize grazing resources in a regulated and sustainable way.³⁹

Even with the Use Book as a guide, problems arose between forest managers and stockmen. During January 1909 N.M. Hodges, prominent Bear Lake Valley resident and owner of the Hodges Land, Livestock, and Milling Company, wrote a letter to a fellow stockowner complaining about the "men who are pretending to run the Forest Reserve." Hodges grumbled that the forest supervisor was treating him unfairly and had ruined his timber and livestock businesses. He argued that each year the number of sheep he was allowed on the reserve decreased and, as a result, he could no longer support his family. He wrote:

Last year they [Forest Service] confined us to a small portion of the range where there was not much feed or water after the month of August. Water was so scarce that the herders could not keep the sheep together, and we lost 170 head in one night, and never have been able to find them again...Conditions became so bad

³⁹ Gifford Pinchot, *The Use of the National Forest Reserves* (Washington, D.C.:1905).

that we had to move our flocks off the Reserve one month before our grazing privilege expired, and for which we had paid.⁴⁰

To end his letter, Hodges pointed out that other stockowners, particularly the Nebeker family, received preferential treatment by the forest supervisor. “Quill Nebeker and Nebeker Bros. have been the most highly favored of anybody on this range. Indeed it is common talk that the Nebeker family owns this Forest Reserve.”⁴¹



Figure 23. Rich County, Utah. 1890s steam sawmill on divide between Rich and Cache Counties. Owned by Nathaniel W. Hodges. Photo courtesy of Special Collections and Archives, Merrill-Cazier Library, Utah State University, Logan.

Hodges’s letter found its way into the hands of Cache National Forest chief of operations R.P. Imes and assistant forester L. F. Kneipp who both looked into the matter.

⁴⁰ R.P. Imes, “Cache Supervision. Part of Inspection Report on the Cache National Forest, March 3, 1909.” Attachment p. 3. R4-1680-2009-0055. United States Forest Service, Region 4 Office, Ogden Utah.

⁴¹ Ibid.

In his report to Forest Service higher-ups, Imes wrote that Hodges had not been discriminated against, and the reason why the Nebeker family was allowed more sheep than anyone else on the reserve was due to the fact that they owned a substantial amount of land inside the reserve boundaries. Imes pointed out that if Mr. Hodges owned as much land as Nebeker, he would be allowed the same number of permits. According to Imes, when Hodges was made aware of this fact he “apparently had no complaint whatever.” To Imes, the whole ordeal had been a big misunderstanding.⁴²

Assistant forester Kneipp, who also investigated the matter, delved deeper and uncovered other issues at play with both Hodges’s and Nebeker’s operations. In his report Kneipp noted that the forest supervisor in Logan had actually favored Hodges, and had not reduced his permit numbers the 10% recommended for all livestock during the 1909 season. The problem, Kneipp wrote, was not that the regulations were destroying Hodges’s business; it was that Hodges had too many mouths to feed. Kneipp wrote:

Mr. Hodges is reported to have three wives and a large number of children, and in order to provide for them equally has organized a stock company and distributed the stock among his various children. His chief claim for preference consideration lies in the fact that the stock holders in his company number 20 or 30 people, and he believes that the company should be given greater recognition than is accorded an individual.⁴³

As to Hodges’s complaint that the Nebeker family “owned the Reserve,” Kneipp found truth. Kneipp discovered that the previous and current forest supervisors made the mistake of giving the Nebeker family too many permits. The Nebeker Brothers Co. (which consisted of two ranchers and two attorneys) used different company names as a ploy to successfully consolidate permits to graze far more sheep than was their right. In

⁴² Ibid.

⁴³ L.F. Kneipp, “Inspection Report on Cache National Forest, April 8, 1909. R4-1680-2009-0055. United States Forest Service, Region 4 Office, Ogden, Utah.

his report Kneipp wrote that the Nebeker Brothers Co. “should never have been recognized in the first place, and at all events should not have been granted any increase.”⁴⁴

The Hodges and Nebeker incident reveals the challenges foresters faced managing the Logan Forest Reserve. Stockmen often blamed the government for their problems or tried to beat the system altogether. Foresters walked a fine line between appeasing stockmen and protecting the range. Compromise was most often the chosen remedy. In the case of Hodges and the Nebekers, foresters worked with Hodges to obtain better grazing lands and contacted Nebeker Brothers Co. to address the apparent hoarding of permits. For the most part, foresters managing the range followed the outline put forth in Pinchot’s Use Book to resolve conflicts.

Because compromise was necessary in resolving conflicts that arose as a result of reserve management (especially when they involved stockmen), the range’s recovery was negligible. Environmental recovery took a back seat to resource use. A close reading of the Hodges and Nebeker incident shows that neither party was interested in improving the landscape if it meant reducing profits. In his 1909 letter critiquing forest managers, Hodges took no responsibility for the water shortages and poor condition of the range. He was unwilling, or more likely, unable to recognize that his thousands of sheep on the reserve helped contribute to the water shortages he suffered from. Similarly, the Nebeker brothers took no initiative to help the range recover, but instead designed ways to work around regulations and get more livestock on the reserve.

⁴⁴ Ibid.

Hodges and the Nebekers were not anomalies. Most forest users continued to go about things much as they had before the reserve was created despite poor range conditions. Although there were fewer cattle and sheep on the reserve, most protected lands were still used for grazing. The policies of “multiple use” and compromise employed by forest supervisors on the Bear River Range were simply not sufficient to address the complex problems caused by decades of unregulated resource use. As much as they tried, forest managers made little progress improving conditions on the Bear River Range and in many ways added to the problem.

By 1910 foresters working on the range reported some improvement but, in general, the landscape was not recovering as they had hoped. Forester H.E. Fenn reported that in many areas the landscape continued to show signs of “past misuse.” He noted that valuable forage plants had been replaced to a great extent by “noxious weeds” and that native grasses were “gaining headway very slowly.”⁴⁵ Most problematic was that the Logan River was still running low and drying up in late summer. During the 1909–1910 irrigation season, farmers and municipal water users complained to Logan City leaders about the failing water supply and water contamination caused by livestock constantly grazing near the Logan River. Logan City Board of Health under the direction of Mayor William Edwards, prominent Cache Valley physician T.B. Budge, and Logan City marshal Niels C. Peterson petitioned the Forest Service to ban grazing on lands contiguous to the Logan River. The Forest Service complied, removing herds as well as

⁴⁵ Fenn, H.E., Cache National Forest Inspection Report July 16-29. R4-1680-2009-0055. United States Forest Service, Region 4 Office, Ogden, Utah.

squatters living along the Logan River.⁴⁶ The following year, however, the water problems continued and pressure was again placed on the Forest Service to address the problem.

Forester H.E. Fenn was instructed to look into the issue. Fenn found that forest users were obeying the regulations put in place, but that overgrazing on state lands within the reserve was responsible for the polluted and drying Logan River. Although it is not entirely clear how state, federal, and private lands were adjudicated when the Logan Forest Reserve was created in 1903, it appears that at least for the first few years, the Forest Service managed lands that were owned by the state, but that were surrounded by the forest reserve. This cooperative agreement kept state lands in roughly the same condition as lands on the reserve. In 1910, however, the State Land Board cancelled this cooperative agreement and replaced it with an acreage competitive system. Stockowners took advantage of the new system, strategically leasing only a few acre units from the state near water sources or near the forest reserve boundary and then introducing as many livestock as they pleased. Fenn found that the largest and most overgrazed section of public lands in the Logan Reserve was a 20,000-acre, state-owned section at the headwaters of the Logan River near Franklin Basin, today commonly referred to as the Franklin Basin Allotment. In his final report Fenn noted, "It is to be regretted that misuse of the state lands will be allowed to offset the good work the Service has done, and I most urgently recommend that, if agreeable to the Sate Land Board, some agreement be

⁴⁶ Correspondence Between Supervisor of Cache National Forest and Logan City over Water Concerns, December 27, 1909. R-4-1680-2009-0042-001. United States Forest Service, Region 4 Office, Ogden, Utah.

entered into looking to a more efficient control of this area.”⁴⁷ In the end, state regulators looked into the matter but did little to address the problem.

This instance of overgrazing on state lands points to how stockmen and settlers in general continued to misuse or overuse the Bear River Range a decade after the creation of the Logan Forest Reserve. The combination of settlers’ lack of conservation, foresters’ over eagerness to compromise, and the erroneous shared belief among both groups that a little livestock reduction would improve the situation frustrated the recovery of the range. The forest users and forest managers simply did not understand how much the landscape had changed and what it would take to repair the ecological damage. Nearly a decade after the establishment of the Logan Forest Reserve, settlers continued to face the same watershed and range problems they had when the reserve was first created.

⁴⁷ Fenn, “Cache National Forest Inspection Report July 16-29,” 7.

CHAPTER 6

CONCLUSION

In 2007 the National Geographic Society published a history of Logan Canyon entitled *Last Unspoiled Place: Utah's Logan Canyon*.¹ The book has since become very popular. It can be found in libraries and bookstores throughout Cache Valley and is the number one search result on Google for “books on Logan Canyon.” It is full of beautiful images of the Bear River Range with stories to go along. However, the book's title *Last Unspoiled Place* is misleading and its content disregards the important environmental history that has shaped the landscape into what it is today. When viewed from a more complicated historical perspective, Logan Canyon, as part of the larger Bear River Range, is perhaps one of the American West's *most* spoiled places.

The beautiful images taken by National Geographic photographers cannot hide the scars of past abuses from a critical observer. The stumps of Douglas fir cut during the 1880s to supply the railroad with ties are still visible near Beaver Mountain Ski Resort where thousands of people come every winter to play. Invasive grasses, particularly cheatgrass, dominate many areas of the Bear River Range popular with hikers. The elk that draw hunters from around the state are not from the Bear River Range, but are reintroduced transplants from a Yellowstone herd.² Although the watershed is better off, several Cache Valley streams, especially Blacksmith Fork and Little Bear Rivers,

¹ Michael S. Sweeny, *Last Unspoiled Place: Utah's Logan Canyon* (Washington, D.C.: National Geographic Society, 2007).

² Norman V. Hancock, “A Management Study of the Cache Elk Herd” (Master's thesis, Utah State Agricultural College, 1955), 13-18.

continue to be dewatered in their lower sections during the late summer months. And finally, the grazing that was such a destructive factor in the historical decline of the Bear River Range, is still allowed on much of the range. In 1998, the state of Utah returned the Franklin Basin Allotment discussed in Chapter 4 to the Forest Service, but only after decades of overgrazing had severely damaged the headwaters of the Logan River. Currently, Franklin Basin is one of the most heavily grazed areas within the Logan Ranger District and has created tension between livestock interests and several conservation groups such as Western Watershed Project and Bear River Watershed Council who argue that the area has been overly damaged and is too important as a watershed to support grazing of any kind.³

As an environmental historian, I am keenly aware of the cuts and bruises suffered by the Bear River Range. I often wonder what the landscape might look like today had Mormon settlers decided to settle somewhere else. When these thoughts enter my mind I have to remind myself that nothing is static, and the place would have changed anyway, regardless of human influence. Nancy Langston has pointed out that as much as we might long for a paradise lost, environmental historians understand that there is no past state of perfect health, stability, and balance to which we can return. Disturbances, particularly human impacts, are part of natural processes that have and will continue to shape landscapes around the world. The important factor then, is not that the Bear River Range changed over time, but how quickly it changed and how sweeping its changes

³ “WWP Utah Office appeals Logan Ranger District Decision authorizing grazing on the Franklin Basin Allotment in northern Utah,” Western Watershed Project, 2009. <http://www.westernwatersheds.org/current-utah-projects/appeal-logan-ranger-district-franklin-basin-allotment/> (accessed March 18, 2013).
Bear River Watershed Council <http://www.brwcouncil.org/> (accessed March 10, 2013).

were. Langston makes clear that when it comes to the transformation of landscapes, *rate* and *scale* are everything. She argues that the critical difference with changing landscapes in our recent past is that “these changes are happening at break-neck speed. They are slow on our human time scale, but on Earth’s time scale they are sudden and violent.”⁴

The rate and scale in which Mormon settlers transformed the Bear River Range from 1860 to 1910 is impressive, and in many instances was sudden and violent. I have shown that the Mormon settlers who came to Cache Valley during the early 1860s found a rich and biologically diverse landscape. Very quickly, however, they began transforming that landscape according to their expectations. Under the religious dictate to “multiply and replenish the earth” settlers successfully introduced exotic plants and fishes and removed predators from the Bear River Range without considering how their actions might affect local ecosystems or historic processes of plant succession.

With the coming of the railroad in the early 1870s, settlers focused on making profits in the larger national economy. Millions of railroad ties were removed from the range as settlers flocked to the hills to turn Douglas fir into cash. In less than a decade most of the accessible timber on the Bear River Range near Cache Valley was gone. On the heels of the lumber boom came a mushrooming of the livestock industry, which brought hundreds of thousands of cattle and sheep to the Bear River Range. Hungry livestock ate everything in their path and by the turn of the century the once-fertile foothills and alpine meadows resembled dry desert landscapes dominated by cheatgrass and less palatable native plant species. Forest fires followed, often started by stockmen hoping to improve range conditions. Lost groundcover weakened the soil’s ability to

⁴ Nancy Langston, “Paradise Lost: Climate Change, Boreal Forests, and Environmental History,” *Environmental History* 14 (October 2009): 647.

resist erosion and absorb moisture from rain and melting snow. The big game that managed to avoid being bagged by hunters during the period struggled to compete with livestock and survive in a grassless habitat. Elk, a species native to the range, was completely extirpated. The Sportsman's Club of Cache Valley, founded during the mid-1890s, attempted to address declining big game numbers, but was unsuccessful as settlers prioritized livestock and market interests over wildlife.

I have shown that by the turn of the 20th century the combined effects of deforestation and overgrazing created a water crisis for farmers and municipal water users in Cache Valley. The Logan River, which originates in the Bear River Range, dried up, prompting conservation-minded intellectuals and businessmen in Logan to propose that the Bear River Range be set aside as a federally protected forest reserve. Farmers and stockowners that relied on the Bear River Range did not support the forest reserve proposal primarily because they did not understand how the mountain landscape functioned. Instead of having a broad understanding of landscape ecology, as Thomas G. Alexander has argued, I argue that the Mormon settlers who used the Bear River Range were unaware of the relationship between deforestation, overgrazing, and watershed health. As a result, some Mormon settlers felt there was no need for regulations. In the end, the forest reserve gained support from local farmers and stockmen not because they wanted or knew how to improve environmental conditions, but because they realized they would lose access to the range's resources if it was not protected.

Finally, I have documented that, during the seven years following the creation of Logan Forest Reserve (1903–1910), environmental conditions improved very little on the Bear River Range. Recovery was slow for several reasons. The foresters put in charge of

managing the newly protected lands encountered settlers who did not understand the mountain environment and were generally uninterested in improving conditions, especially if it meant sustaining short-term financial losses. More often than not, foresters sympathized with stockowners and placed priority on “multiple use” policies favoring the success of the livestock industry instead of forest health. In addition, the foresters’ prescribed treatment of simply reducing the number of livestock on the reserve did little to help. The large portions of unregulated, state-owned grazing lands located within the boundary of the reserve at the headwaters of the Logan River made attaining management goals and improving overall watershed health impossible. By 1910 the Logan River was still in decline and water users in Logan City and foresters faced the stern reality that the Bear River Range would not respond to their human-imposed restoration timelines and desires for greater profit margins.

In conclusion, by using the Bear River Range as an intimate case study, this thesis gives readers a sense of what environmental decline and attempted restoration looked like in Cache Valley, Utah, as well as the larger western United States, at the turn of the 20th century. It offers, as its value, a cautionary reminder of how sensitive our mountain ranges really are. As human and natural forces continue to reshape this particular landscape into the future, the environmental history of the Bear River Range will inevitably be rewritten. My hope is that, with a better understanding of history, the future story of the Bear River Range will be one of restored biodiversity and health instead of environmental decline. What we need is a more accurate National Geographic Society composition entitled “*A Spoiled Place Restored: Utah’s Logan Canyon.*”

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