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Evaluating Planning and Management of Natural Resources Within the Utah State Park System

Erin K. Mann
Utah State University

EVALUATING PLANNING AND MANAGEMENT OF NATURAL RESOURCES WITHIN THE UTAH STATE PARK SYSTEM

by

Erin K. Mann

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Approved:

_____	_____
Keith Christensen Ph.D. Major Professor	Daniella Hirschfeld Ph.D. Committee Member
_____	_____
Zachary Miller Ph.D. Committee Member	D. Richard Cutler, Ph.D. Interim Vice Provost for Graduate Studies

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ABSTRACT

Evaluating Planning and Management of Natural Resources

Within the Utah State Park System

by

Erin Mann, Master of Environmental Planning

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Major Professor: Keith Christensen, Ph.D.

Department: Landscape Architecture and Environmental Planning

A change in management style, combined with increased visitation and the advanced age of Resource Management Plans in Utah's State Parks, is leading park managers to potentially not fulfill the objectives stated in their general management or Resource Management Plans. By conducting content analysis on the Resource Management plans of ten sample parks, we found that written plans originally had strong priorities and goals regarding the care and management of natural resources. Significant findings included strong emphasis on resource protection, data collection, and research. Semi-structured interviews with the sample park managers indicated a wide divergence from the Resource Management Plans in priorities and actions regarding natural resources. Analysis on the rate of visitation increase compared with the increasing age of the Resource Management Plans and a shift toward greater dependence on Business Plans also shows a departure from the objectives stated in the plans. Recommendations include updating Resource Management Plans, developing basic thresholds for data collection,

additional research on Business Plans, and additional resources and training for park managers regarding Resource Management Plans.

(104 pages)

PUBLIC ABSTRACT

Evaluating Planning and Management of Natural Resources

Within the Utah State Park System

Erin Mann

A change in management style, combined with increased visitation and the advanced age of guiding documents used to describe conditions and goals (known as Resource Management Plans) in Utah's State Parks, are leading park managers to potentially not fulfill the objectives stated in their Resource Management Plans. Using a research tool known as "content analysis," we analyzed the Research Management Plans of ten sample parks and found that written plans had strong priorities and goals regarding the care and management of natural resources. Significant findings included strong emphasis on resource protection, data collection, and research. Pre-written questions were asked of the sample park managers during a phone interview where we discovered a wide divergence from the Resource Management Plans in priorities and actions regarding natural resources. Analysis on the rate of visitation increase compared with the increasing age of the Resource Management Plans and a shift toward greater dependence on Business Plans also showed a departure from the objectives stated in the plans. Recommendations include updating Resource Management Plans, developing basic thresholds for data collection, additional research on Business Plans, and additional resources and training for park managers regarding Resource Management Plans.

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Erin Mann

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CHAPTER 1: INTRODUCTION

Prior to 2012, the Utah State Park System received one third of its revenues from the Utah General Fund to cover primarily operating deficits. After 2013, the General Fund appropriation was reduced by two-thirds. Now, Utah state parks are each operated as "individual business units," and each park manages its own finances, assets, and natural resources. While there is some oversight from the Utah Division of Parks and Recreation, individual park managers are primarily responsible to "protect and interpret each park's natural and cultural resources, ensure safe and enjoyable experiences, provide for new visitor opportunities, and develop and enhance facilities" (*State Park Resource Management Plans, 2019*). Park managers are also primarily responsible for the financial health and well-being of their park. The purpose of this study is to analyze the rigor of park management plans and determine whether park managers are fulfilling the objectives stated in their general management or resource management plans (hereafter referred to as RMP).

Background and Significance

In 2011, at the behest of the Natural Resources Appropriations Subcommittee, an audit was conducted on the Utah State Park System to assess ways the parks could be run more cost-efficiently and reduce dependence on the state general budget. Consequently, in 2012 the General Fund appropriation was reduced by 50%, and further reduced to two-thirds after 2013. This reduction required that "managers of scenic and recreation parks are required to operate at a profit" (Hayes, 2017 p. 9).

Today, the majority of Utah state parks have become financially self-sufficient. Scott Strong, Deputy Director of Parks and Recreation, has verified that "29 of the 34 recreation parks generate enough money to cover their operating costs. If other outside factors (e.g., dam construction, water levels, fires, etc.) are brought into the equation, 33 out of 34 parks would have an operating profit." As park managers focus on generating financial resources to maintain operating self-sufficiency, their attention may be distracted from other duties, such as fulfilling the stated goals in each park's general or Resource Management Plan (hereafter referred to as RMP).

During the years 2014-2019, park visitation also increased by 52% (Park Visitation Data, 2019). In the year 2020, the busiest time of the year (May-August) saw a 36% increase in visitation over the previous year. That's an additional 1,773,336 more visitors than in 2019 (Utah State Parks Blog, 2020).

As park managers experience increasing traffic within their parks, they are at liberty to accommodate those visitors as would individual business units. This includes adding more infrastructure, such as campgrounds, parking lots, trails, bathrooms, etc. However, the physical land area of the parks is not increasing along with visitation, so infrastructure expansions must be carefully planned to fit within the physical constraints of each park and must maintain a high likelihood of financial profitability.

Scott Strong, Deputy Director of Parks and Recreation, has said, "Baseline measures are established at the local park level by park managers, who are the local experts." Thus, the condition of natural resources in state parks are compared only within its own park and guided only by its own RMP. Throughout this document, the term "natural resources" is used interchangeably with the term "biophysical resources," the

definition of which was taken from the book *Environmental Planning.* These resources are defined as, "the earth's life-support system – air, minerals, soil, water – and the plant, insect and animal matter which these sustain" (Selman, 1999 p. 2). General management, or RMP, are written by a group of people which often includes such individuals as:

- Park manager
- Local business owners
- Private citizens
- Local government officials
- Regional manager
- Scientific experts

Thirty-three of the 43 parks within the Utah State Park system have a publicly-available RMP. Of those 33 parks, 28 are more than 10 years old, and six are more than 20 years old. Only two of the 43 existing state park RMPs were written after 2012 – the first year in which funding from the Utah state legislature was decreased and parks began the shift to being run as "individual business units" (stateparks.utah.gov).

Project Objective

Given Utah state parks' (1) change in operating structure in the parks in 2012, (2) increasing visitation, and (3) age of the parks' RMP, this study determined whether the stated goals within Utah State Parks' RMP are guiding state park managers' priorities and actions in protecting natural resources within the parks.

CHAPTER 2: LITERATURE REVIEW

Planning Documents

Each state park has a resource management plan (RMP) to outline the resources and future plans for the park. These planning documents are an important reference guiding park managers' management actions within their parks. The Utah Division of Parks and Recreation entrusts that each park has its own accurate and relevant RMP to account for the resources and recreation opportunities within the park. This management strategy stems from the fact that the Division takes a broad approach to management of the parks, as noted in its most recent strategic plan:

> Contained within these pages are broad statements of our commonly held values and goals that we intend to accomplish. Measurable objectives and strategies for accomplishing those objectives have been omitted from the plan with the intent of having individual unit managers actively add these elements on an ongoing basis. (Hayes, 2017)

This type of management places a greater responsibility on individual park management to first develop measurable objectives and strategies and then to carry them out and evaluate whether those strategies should be continued. This is where my research comes into play – determining whether the values and goals stated in each park's RMP align with the actions taken by that park.

Prior study has shown that undertaking and implementing strategic planning is a common weakness across parks and recreation planning efforts. (Gebhardt & Eagles, 2014). The same study by Gebhardt & Eagles (2014) focused on municipalities planning

for public parks, where the planning process is similar, several factors were identified to improve planning implementation, which include but are not limited to:

- Formulating goals
- Selecting management categories
- Taking inventory
- Identifying gaps
- Measuring reserve condition and vulnerability
- Focusing on natural processes and the human dimension of reserve management

The authors conclude that having good inventory data on the resources within parks is crucial to identifying gaps in resource protection efforts, and that goals should be developed and clearly articulated before identifying areas for protection area management. Resource management plans often try to combine scientific knowledge with limited resources and political realities, which can lead to less-than-ideal planning situations. This may often lead to inaction, rather than risk acting incorrectly.

A case study within this research highlights the large disparities that occur between management plans of protected areas in New South Wales, Australia. It is pointed out that there is little documented evidence showing the improved ecological outcomes, despite the many plans and hours put into planning in the New South Wales region. The article proposes guidelines to assist in plan preparation and argues that a focus should be placed on the content of the plans. It also suggests that legislative or administrative action be taken to try and streamline the many types of management plans that exist in protected areas, thus reducing inconsistencies and confusion for land managers (Fallding, 2000).

Because each of the state parks in Utah uses a Resource Management Plan, it is important to understand the elements of a well-written plan as well as the implications for having multiple types of guiding documents, either between parks or within each park.

Collaborative planning models, such as Resource Management Plans, are an increasingly popular method for resource planning. The results of a previous study have revealed that collaborative planning methods, such as a multiple criteria evaluation method, yield many benefits, including improved relationships and understanding among planning participants (Gunton & Peter, 2006). While my study is not critiquing the effectiveness of plans, per say, it does deal directly with the use of collaboratively-written plans and is seeking to determine whether plans are being utilized.

Management Style and Shift

Utah's state parks underwent a management style shift in 2012. Such a shift in management has implications for the parks' finances, resources, and recreation opportunities. Prior research has studied the management shifts and types that take place among public lands.

Research has been conducted on the privatization process many public parks have undergone in recent decades. An article by More (2005) describes the historical context, explains alternative management styles, and discusses consequences of the shift toward privatization. It also posits that in order to maintain the conservation gains we have achieved over the past decades, we need to regain an appreciation for the social role of public land management agencies. While I am not advocating for one management style over another, I examined the implications of the management shift which took place in Utah's state parks.

A previous study conducted by Eagles (2014) sought to understand the effects on Canadian provincial parks when they moved away from a government-funded model to a user-paid system. Just as Utah's state parks moved to an individual business model of

park management, the Canadian parks' income and visitation both increased over the ensuing years after moving to a user-paid system.

Another related study by the same author (Eagles, 2002) sought to understand the relationship between park pricing policies, park tourism competencies, better visitation statistics, and new tourism management structures. The researcher posits there is a need for better conservation management strategies to keep the parks sustainable. This is important research, especially considering the rapid spike in tourism to state and national parks across North America in recent years.

The author also calls for more thorough collection of visitation data in order to develop a proper baseline for decision-making. As the author notes, "Management decisions should be based upon data. The better the data, the better the chance of good decisions" (Eagles, 2002). My research sought to understand exactly what types of data are collected at each park. I concluded whether these data measures are referred to when making decisions within the parks.

Additional research by Leopold (1963), sets forth the conclusion that continued scientific research is necessary for making management decisions regarding public lands. The research also states that scientific research is necessary for maintaining some biotic communities. Many public land managers today are faced with the difficult challenge of balancing the protection of public resources with public enjoyment while under political pressure for increased revenue (Morgan, 1996).

The reason Utah's state parks made a management style shift in 2012 was due to pressure from the Utah state legislature to decrease dependency on the Utah general budget. In the case of Utah's state parks, balance exists somewhere between creating

enough revenue to cover all park costs and managing the other myriad of park concerns including infrastructure, biophysical resources, and visitor concerns.

With over 5,000 state parks across the U.S., state parks have become important spaces of preserved open space in our country. However, they have evolved into many differing opinions and purposes. Consequently, there is no general consensus on the best way to manage state parks (Landrum, 2004). Utah's parks have been greatly influenced by both the political force of change in 2012 and recreation demands.

Management Evaluation

In order for planning documents to remain relevant and useful, it is necessary to regularly evaluate the effectiveness of said documents through verbal or written review. In researching the priorities and actions of Utah state park managers, it was important to understand what types of baseline measures were being conducted regarding biophysical resources. This included finding out whether any types of assessment frameworks were being used to maintain ecological integrity.

Much prior research has been done on the conservation of biological and ecological resources in U.S. National Parks. One such framework created for this purpose is the Ecological Integrity Assessment Framework, a tool proposed to the National Park Service to help manage biological resources within the National Parks. This tool combines aspects and theories from many conservation groups around the world in an attempt to create a guiding document about how park managers can properly maintain the ecological integrity of their parks (Unnasch, et al., 2009).

A second assessment framework provides more insight into the types of evaluations being done on public planning processes. This text examines the planning

processes in two Portuguese cities. The researchers have designed an evaluation methodology – the Plan-Process-Results approach. The planning processes are evaluated based upon their "rationality, performance, and conformance" (Oliveira & Pinho, 2009). While the evaluation criteria are different, the idea of a standardized method is consistent.

Additional research examining the management of natural resources explores major themes in the ecology of conservation of landscapes. Researchers have identified 13 specific issues that need to be addressed in these efforts. Two crucial overarching issues are: (i) a clearly articulated vision for landscape conservation and (ii) quantifiable objectives that offer unambiguous signposts for measuring progress (Lindenmayer et al., 2008).

As previously mentioned, abundant research has been conducted on the evaluation of ecological conditions within national parks. These studies can be referenced in the research of state parks because of the striking similarities between the two sets of public land spaces. It is becoming increasingly accepted that protected public parks must be managed as parts of larger ecological systems. Scientific information must form the foundation for natural resource stewardship efforts to meet the NPS mission (Fancy et al., 2009).

The National Park Service Advisory Board (2001) stated:

> A sophisticated knowledge of resources and their condition is essential. The Service must gain this knowledge through extensive collaboration with other agencies and academia, and its findings must be communicated to the public, for it is the broader public that will decide the fate of these resources.

There are many types of scientific collection methods, and not all of them are as rigorous as others. This paper did not rank the quality of collection methods, and my study did not do that either. But it did seek to compile a list of the types of data being gathered in parks to help inform other State Parks and to improve data collection at the parks in general. The Division of Wildlife Resources has deemed that each of Utah's state park managers is the expert on his/her park, and thus, the management actions and policies for that park are determined on a park level.

Other research has theorized that, at a larger scale like the National Park Service, a "top-down," "one size fits all" approach to monitoring design would have been neither effective nor supported because of the tremendous variability among parks in ecological context and in park sizes and management capabilities. Because individual parks have very different resource issues, information needs, and partnership opportunities, their methods for data collection will vary from park to park" (Fancy & Bennetts, 2012).

While parks have varying needs and management styles, a lack of proper regulatory and management systems within public land management can result in, what one research paper terms, "paper parks" (Getzner et.al., 2012 p.129). Evaluation and monitoring tools generally provide the basis for assessing these frameworks both in terms of efficiency, effectiveness, and social and distribution issues (Getzner et al., 2012). While my research did not critically analyze the monitoring tools used among the parks, it sought to understand the importance of these tools within the parks and whether these types of tools are used for evaluating the regulation and management of natural resources.

One main consideration for any state park in Utah is the balance between the finances necessary to maintain the park and the time, energy, and money spent on conservation of natural resources. Research has been conducted on the topic of spatial evaluation of the costs and benefits of conservation for the Atlantic forests of Paraguay. For this specific park, researchers found that benefits exceeded costs in some areas, with carbon storage dominating the ecosystem service values and swamping opportunity costs (Naidoo & Ricketts, 2006). One shortcoming of the study was the limited availability of relevant data from the park. This type of study can help understand the trade-offs between biodiversity conservation and economic development.

My study examined a larger sample size of parks, but it sought to understand how park management prioritize in the trade-off between biodiversity conservation and economic development. Another consideration for state parks is the balance between park preservation and public use. Prior research has argued in favor of each topic. But one argument in favor of preservation posits that the very survival public parks depends upon adopting public policies that favor preservation (Batchelor, 1988). This research concludes that public parks provide a protected area of biological diversity in a time when biological diversity is rapidly disappearing.

While preservation of natural resources is a main goal of Utah state parks, equally important is the ability to let patrons recreate while remaining fiscally responsible. National parks (and in our case, state parks) experience many pressures today that they may not have endured at the time of the creation of the NPS, including pollution, climate change, habitat fragmentation, etc. Relying on founding original guiding documents may not always hold the answers for the modern problems faced by many public parks today.

A critical review of the Leopold Report, originally published in 1963, argues that structural changes and investments are needed to fix these problems. This text posits that all policies going forward should welcome the need for change and increase restrictions on impairment of park resources (Colwell et al., 2014). While the study looks at national parks as a whole and my study looks at ten individual parks, the principles guiding both public land agencies are similar.

Research Method

Content analysis is a research tool used to find meaning from written documents or communication. I employed this tool in my study to understand the priorities of park managers at the time of the writing of each RMP. I sought to derive meanings from the RMP by counting and comparing prespecified words and phrases and then interpreting those results to derive meaning in a summative approach (Hsieh & Shannon, 2005).

Hseih & Shannon (2005) have provided additional insight into the field of content analysis by describing three differing approaches to content analysis: conventional, directed, and summative. My research followed the summative approach, where words and phrases were counted and compared and were then interpreted to derive meanings.

As a research tool, content analysis can be argued to be subjective, in that multiple meanings can be gleaned from a text, and there is some degree of interpretation happening. Thus, it is important to disclose this idea when describing the study's findings (Graneheim & Lundman, 2004). I sought to address the subjectivity of my study by descriptively explaining my methodology, acknowledging limitations, and explaining my personal interpretation of the data.

Another method of reducing the subjectivity of content analysis is by creating greater intercoder reliability. Prior research has been done on this topic and has stated that analysis should be conducted by at least two readers. Those researchers should report to what extent their analysis agreed or disagreed (Stevens et al., 2014). This method allows readers to understand the reliability and replicability of the findings and was key in creating validity in my research. Additional research on the topic of content analysis validates the position that this tool should be used in a way that is, "objective, systematic, and quantitative" (Kassarjian, 1977).

Content analysis has received more attention since this article was written in 1977. However, I sought to implement these characteristics (objective, systematic, and quantitative) in my own research to help it remain impartial and valid. I specifically looked for trends by analyzing the numbers of coded words, or in other words, conducting a quantitative analysis. My purpose in doing so was highlighted by this phrase from the study: "Quantification of judgments distinguishes content analysis from ordinary critical reading" (Kassarjian, 1977).

The method of quantifying judgments is supported in additional research as well. Stemler (2001) finds that content analysis allows the study author to make objective inferences by analyzing the characteristics of the passages. Those passages can then be used to "discover and describe the focus of (an) individual, group, institutional, or social attention" (Weber, 1990).

Previous research by Suto and Helvi (2008), has created a model to describe both the inductive and deductive analysis approaches to content analysis. In the inductive approach, a history of previous evidences or theories doesn't exist. In the deductive

approach, previous theories or categories from different time periods are compared. The methodology for my study employed a deductive approach which sought to test a previously derived theory.

In order to give meaning and weight to the terms analyzed in the RMP, it was necessary to first identify the words and themes applicable to this study. Prior research such as that done by White & Marsh (2006), outline a ten-step process for properly conducting content analysis. The steps in this process include identifying the appropriate data and the data collection unit.

Another text by Krippendorf (2018) provides an overview of content analysis, as well as a detailed look at how to identify the units to be collected ahead of time and how to evaluate the results of that sampling. The body of research previously done on the methodology and steps to be undertaken in content analysis helped frame my own methodology and conclusions.

Content analysis assisted me in understanding trends and priorities in the RMP. Additional insight into evaluating plans was also necessary. It was necessary to understand whether the plans laid out in the RMP had been completed. Prior research has been conducted on the evaluation of planning documents.

Many organizations face a difficult task – planning under uncertainty and determining whether plans have been successful, even if they have not totally implemented the plans or have had to change action mid-course (Alexander & Faludi, 1989). Rigorous models have been developed to help determine the soundness of plan and policies and their effects. State parks have many changing variables (visitation,

weather, habitats, facilities, etc.), making it difficult to evaluate the completeness of RMP plans.

There are multiple studies which have employed the same mixed-method approach I took in my analysis. A study by Baker et al. (2012) analyzed seven local adaptation plans and assigned values to score the content and quality of those plans. This content analysis was followed up with semi-structured interviews conducted with local government representatives to provide further insight in the analysis.

Interviews

The interviews for this study were styled as semi-structured interviews and conducted over the phone. While this presents some advantages for recording the interviews, it presents some challenges as well in conducting the interview and analyzing the answers presented.

Previous work on semi-structured interviews have described them as an interchange where the interviewer asks a list of predetermined questions to the interviewee. These questions are not strictly adhered to, as the interview is conducted in a conversational style where the interviewee determines the important aspects of the conversation (Clifford et al., 2010). This type of interview was utilized in my study as it allowed me to add qualitative context to the results found in the content analysis.

Another text on semi-structured interviews presents a guide for properly setting up, carrying out, and analyzing qualitative interview data. Tips from this text were helpful in conducting my own study, such as thoughtfully basing interview questions on the research question and analytical framework, organizing questions in a way to gain the

participant's trust, and asking for final thoughts at the conclusion of the interview (Galletta, 2013).

An additional text by Kvale (2005) on interviews covers issues such as ethics, interview variations, quality of interviews, and enhancing interview quality. This text advises giving special attention to the pre-interview preparations in order to result in a high-quality interview that is both easy to transcribe and analyze. Another tip suggests keeping the entire research process in mind as the interview is progressing through the different stages. This method allows the interviewer to stay on-topic and keep the interview material relevant to the research question.

Previous research on the development of a semi-structured interview guide has resulted in a systematic methodological review of such guides. The results of a review by Kallio et al., 2016 are a five-phase process for properly conducting such an interview. These steps include:

1. identifying the prerequisites for using semi-structured interviews
2. retrieving and using previous knowledge
3. formulating the preliminary semi-structured interview guide
4. pilot testing the guide
5. presenting the complete semi-structured interview guide

The purpose of creating such a guide is to help researchers establish trustworthiness and objectivity for their studies. An important take-away from this study is that the original interview questions should be included in order for additional research to be conducted in an objective and scientific manner (Kallio et al., 2016). This article provides context for setting up a study in a way that allows further research to be conducted.

A prior study that focused on the ways land managers are adapting to management practices in preparation for climate change employed the same mixed-

method approach as my study. This study, conducted by Archie et al. (2012), administered a survey to land managers from different federal agencies to learn about how managers are adapting management practices to prepare for climate change. The researchers conducted a content analysis (on the quantitative results of the survey) and compared that to the qualitative survey responses in order to gain a better understanding of the survey responses. This type of methodology sets a precedent for comparing the results of a quantitative analysis on the content analysis and a qualitative analysis on the survey results.

Previous research has argued that scientific writing needs "Grab," meaning it should be both interesting and memorable. As one author explains, many qualitative research write-ups are written in a third-person style and often sound detached from the work that was completed. In an effort to make the information interesting and also in accordance with good science, the researchers' form of writing should be consistent with their philosophies of science. Quoting Glaser and Strauss (1967), Gilgun (2005) affirmed that the reader should be "sufficiently caught up in the description so that he [sic] feels vicariously that he [sic] was also in the field" (p. 230). Thanks to this study, I attempted to present my research in a way that was both interesting and useful to state park managers, government officials, and public land managers generally.

Visitation

Understanding the rates and trends of visitation at state parks is a vital component to understanding the priorities of state park managers. Visitation at Utah's state parks is calculated by the Division of Parks and Recreation administration using an algorithm based upon the monthly income brought by each park.

Prior research has found that social media posts are significantly related to reported visitation in Utah's public lands. Results suggest that social media posts can be used to understand tourism demand (Zhang, 2020). Additional means of calculating visitation at state parks allows the Division of Parks and Recreation to confirm the numbers of visitors at each park.

Previous research has been conducted on alternative ways to calculate visitation to state parks in Georgia. Methods such as the SOPARC method can be used to quickly estimate the numbers of visitors in high density day-use areas for baseline knowledge. The SOPARC (System for Observing Play and Recreation in Communities) tool is an observational method that helps identify setting, activity type, and demographic in an effort to better tailor the amount and kinds of offerings for visitors (Whiting, Larson, Green, 2012).

Understanding how many visitors a park has and where those visitors are concentrated can potentially assist park managers in planning for infrastructure, finance, and biophysical protection. Analysis of visitation numbers at Utah's state parks has the potential to yield additional conclusions about how state parks are planned and managed.

One prior study conducted from 1984 to 2010 examined factors, such as labor and capital investments, that contributed to attendance. Results from this study concluded that there would be a need for state governments to increase the labor force in park lands if visitation continued to increase, and not necessarily increase capital for the parks (Siderlis, Moore, Leung, Smith, 2011).

A study of all state parks in the U.S. revealed that more than 3,000 state parks were created between 1975 and 2007. This represents 2 million acres of land. The U.S.

state park system estimates that time value of all recreation enjoyed in state parks is approximately $14 billion dollars annually (Siikamäki, 2011). Because state park managers are financially responsible for their own park, including visitation and finances, it is imperative that managers understand changing park patterns.

CHAPTER 3: METHODS

This study used a two-phase mixed-method approach to better understand the quality of natural resource management in Utah State Parks. Content analysis, conducted on the sample parks' RMP, was analyzed against the transcriptions of interviews of park managers to find similarities and disparities between the two. This content analysis sought to derive meanings by counting and comparing words and phrases and then interpreting those results to derive meaning in a summative approach (Hsieh & Shannon, 2005). As noted by Stemler (2000), quantifying characteristics of the passages being studied allows the author to make objective inferences about those passages.

Interviews were conducted via phone and were styled as semi-structured interviews. As defined by Clifford et al. (2010), this type of interview allows the interviewer to deviate from the written questions in a more conversational style if the topic of the conversation is deemed important. Participants were asked for final thoughts in an open-ended style question at the end of each interview (Galleta, 2013). This recommendation proved to be a valuable suggestion in conducting the interviews, as valuable thoughts and insights were uncovered during this time. Taken together, the results of the content analysis and interviews proved to reveal profound insights into the way parks are being run today. Further detail will be discussed below.

This project has the support of the Utah Division of Parks and Recreation via deputy director Scott Strong. Communications with him have resulted in information about the parks, their management, and contact information for park managers at each of the sample parks chosen for the study.

Setting

In order to understand conditions across the Utah State Park system, this project looked at a sample of state parks representing each of the three management regions (North, East, and Southwest). These case study parks showcase a variety of visitation rates and resources (lakes, rivers, wildlife, geology, plants, etc.). These parks included, as shown in Figure 1 below:

1. Antelope Island
2. Bear Lake
3. Dead Horse Point
4. Escalante
5. Goblin Valley
6. Gunlock
7. Kodachrome
8. Sand Hollow
9. Utah Lake
10. Wasatch Mountain

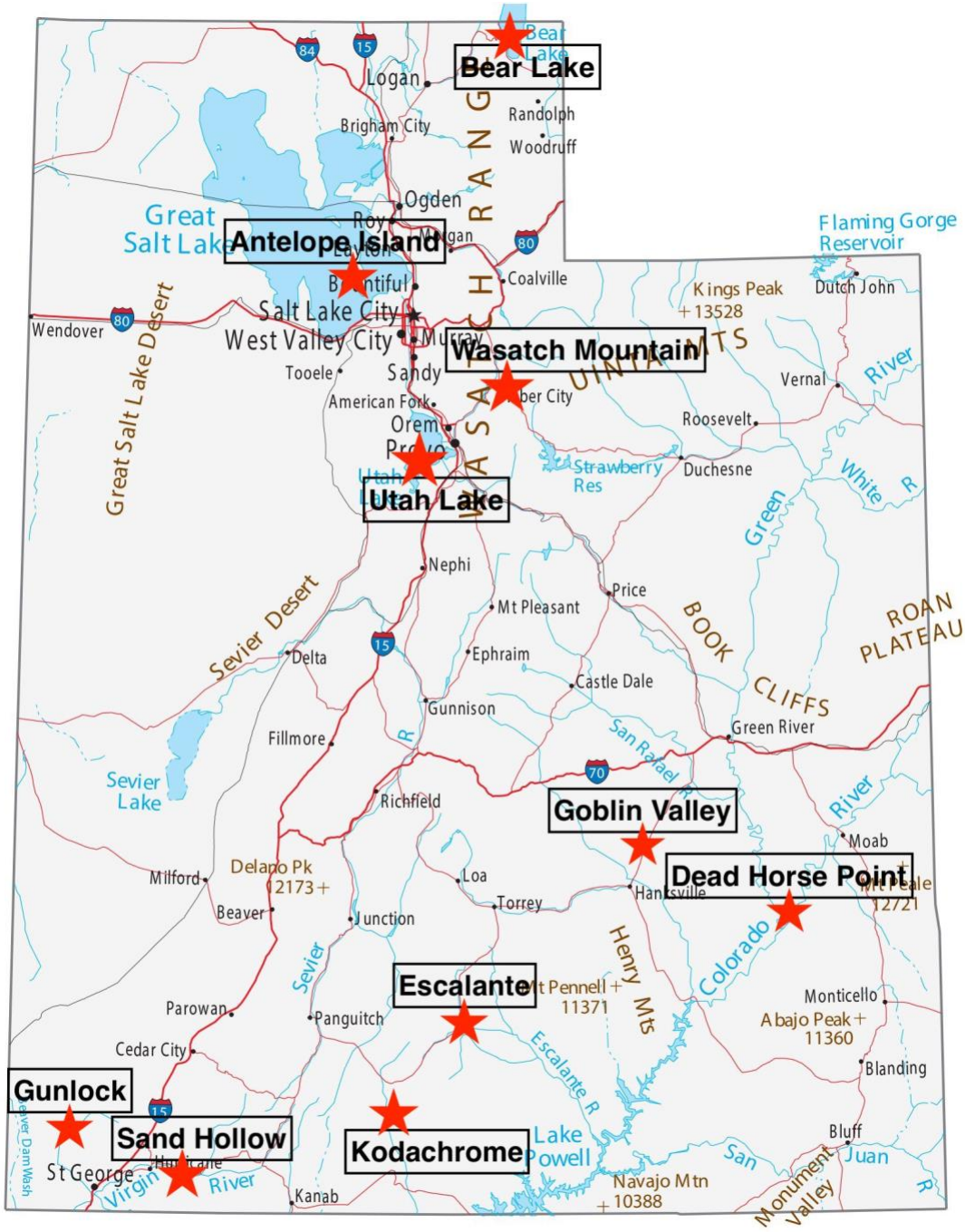

Figure 1. Utah state parks (stateparks.utah.gov, 2020). Sample parks are highlighted by a red star.

I began by researching all available RMP. For each plan, I:

- Determined when the plan was last updated
- Identified the park's goals (specifically those related to natural resources)
- Ascertained the most current yearly visitation numbers

I conducted content analysis in Microsoft Excel and analyzed the results to gain a better understanding of the stated priorities in the RMP. Other studies employ a similar methodology, including a study conducted by Baker et al. (2012), which studied seven local adaptation plans and assigned values to score the content and quality of those plans.

I read through the RMP for each of the ten case study parks and pulled out all the passages pertaining to natural resources. I conducted content analysis on those passages to identify "themes" with particular terms and keywords. The analysis conducted on these results developed a baseline understanding of park operations against which interviews were compared.

Next, I created a semi-structured qualitative interview to be distributed to all park managers (see Appendix 1 for full interview questions). This interview attempted to understand the park managers' priorities for managing their respective parks and how the conservation or development of natural resources rank in those priorities. I asked questions to understand whether each park's RMP was being referred to and whether goals from it had been implemented within the park. I also asked what kinds of scientific data each park retains concerning its natural resources and when that data was last updated.

All ten case study parks were contacted, and interviews were conducted with park managers. The strategy was to first email the park manager explaining my project and

then send my project proposal for reference. Interviews were then set up for the proceeding weeks, and I conducted interviews over the phone.

The interview was designed as a semi-structured interview where questions were written out, but not strictly adhered to in the conversation, as in the style described by Clifford et al., 2010 in the text *Key Methods in Geography*. The purpose of these questions was to compare whether park management were fulfilling the objectives stated in their RMP as they relate to natural resources within their parks. Interview answers were then compared to the stated goals and content analysis gathered from each park's RMP. This comparison sought to understand whether there were disparities between the park's RMP and the park manager's current priorities and actions as related to natural resources within his/her park.

Next, in order to add context to each park's results, I studied the publicly available visitation numbers to study trends in visitation over the past ten years. Lastly, I used an Excel spreadsheet to create a checklist of the kinds of data each park retains for the natural resources within its boundaries. This helped create a clearer picture of the body of knowledge regarding each park's natural resources. This was done to help identify any gaps that needed filling in each park's knowledge base about its resources.

Description of Anticipated Impact

The research question guiding this study asked whether park managers are fulfilling the objectives stated in their general management or resource management plans. It was my theory that factors such as advanced age and relevance of the RMP and demands like increasing visitation play a stronger role in guiding the thoughts and actions of park managers and park staff as they care for and manage natural resources.

This study dealt directly with the proper care and management of Utah's public lands. Because Utah has such distinct and diversified landscapes, public lands are highly valued by its citizens. This has also led Utah to become a world-renowned destination for international visitors. It is therefore imperative that the driving attraction behind our parks, their pristine beauty, natural appeal, and viewscapes, be properly maintained and protected.

The results of this project allowed state park managers to have a clear understanding of the alignment or disparity between their park's RMPs and current actions regarding natural resources. It allowed park managers to see if any gaps exist in the body of scientific knowledge regarding natural resources within their park. The results of this study will help park managers in both short and long-term planning and updates of their RMPs. It can also help scientific researchers to know where further research is needed.

CHAPTER 4: CONTENT ANALYSIS

Introduction

The mission of Utah State Parks is as follows:

> To enhance the quality of life of Utahns and visitors by preserving and providing natural, cultural, and recreational resources for the enjoyment, education, and inspiration of this and future generations. (Utah Division of Parks and Recreation Strategic Plan, 2018, p.4)

The purpose of this study was to analyze the rigor of park management plans and determine whether park managers are fulfilling the objectives stated in their general management or resource management plans.

As can be read in the above mission statement, park managers and staff are tasked with many responsibilities, both with regards to the resources within their parks and the visitors who enjoy those resources. One of these challenges is the need to be financially self-sufficient – a mandate which became necessary after the Utah General Fund appropriation for state parks was reduced by two thirds in 2013. Another challenge is increasing visitation. From 2013-2018, overall park visitation increased by 52% (Park Visitation Data, 2019).

The written document for guiding each park in its role of preserving and providing resources is a Resource Management Plan (RMP). My objective in this portion of the study was to study the RMPs from ten sample parks, analyzing each document for key terms and phrases related to the care and management of natural resources. Understanding the rate and occurrence of these terms helped me understand the priorities and goals of management regarding natural resources. The following section will outline

my methodology and the results of a content analysis conducted on ten RMPs from Utah's state parks.

Methods

Document Selection

The documents analyzed for this study were the RMPs provided for every state park in Utah. These are publicly available on the Department of Natural Resources website (DNR) website: https://stateparks.utah.gov/resources/planning-and-development/.

A sample of ten parks were chosen, representing the three management regions (North, East, and Southwest. The 43 parks in the Utah state park system represent a variety of biophysical and recreational resources. These include lakes, reservoirs, rivers, mountains, deserts, historic sites, etc. They also represent a wide spectrum of visitation rates. Consequently, it was important to choose parks representing a variety of these factors, in order to best inform my research question. These parks included the following, (see Figure 1 for a map of these parks):

1. Antelope Island (North)
2. Bear Lake (North)
3. Dead Horse Point (East)
4. Escalante (East)
5. Goblin Valley (East)
6. Gunlock (Southwest)
7. Kodachrome (Southwest)
8. Sand Hollow (Southwest)
9. Utah Lake (Northern)
10. Wasatch Mountain (Northern)

Coding Process

Before beginning the coding process, I searched planning literature to ensure I was analyzing for the most widely accepted themes regarding resource protection. This search resulted in themes such as:

- Monitoring – collecting "reliable scientific information about the condition and trends of the natural resources" (Fancy & Bennetts, 2012)
- Reference Value – "Reference values come in a wide variety of names (benchmark, standard, trend, threshold, desired future condition, norm), but all refer to a comparison to which an indicator can be examined or gauged." (U.S. Forest Service, 2004)
- References to many types of natural conditions, as detailed in the EPA Conditions Assessment Framework - 1) Landscape Condition, 2) Biotic Condition, 3) Chemical and Physical Characteristics (water, air, soil, sediment), 4) Ecological Processes, 5) Hydrology and Geomorphology, 6) Natural Disturbance Regimes (EPA, 2002)

Code Words and Definitions

The following is a list of each of the code words or phrases that I searched for when analyzing the RMP.

Table 1

Coded Words and Phrases

Coded Term	Definition
Mission Statement	A formal synthesis of the park's values and direction
Policy	A course of action or priority
Action Item	An event or task outlined to be completed
Informational	Any statement about the natural resources that was simply informative and didn't outline a priority, action, or intention
Cooperative	Any statement that referred to cooperation within the park or with an entity outside of the park
Resource Protection	Any statement that referred to preserving or protecting natural resources within the park
Conservation	Any statement that specifically referred to conserving some resource within the park
Reduce Impacts/Mitigate	Any statement that specifically referred to reduced harmful impacts on natural resources or mitigating harmful impacts or degradation within the park
Reference Value	Any statement that referred to a reference value, such as conducting a study to ascertain a benchmark level of degradation or recording the levels of a lake to understand the trend of increasing or decreasing water levels

Implement	Any statement referring to implementing or beginning a course of action within the park
Investigate/Research/Study/Explore	Any reference to one of these words
Monitor	Any reference to monitoring or studying a topic over time
Restoration	Replicating the site to exactly pre-disruption conditions
Reclamation	Similar function and organisms after disturbance, but not exactly the same pre-disruption conditions
Rehabilitation	Made useful but with different use and species
Re-creation (Reconstruction)	Create an image of pre-disruption conditions in original form but not function
Revegetation	Putting plants back
Recovery	Custodial management after disturbance which allows for recovery through natural processes
Recreation	Any specific reference to the word recreation meaning any activity or enjoyment done by park users or work done by the park to facilitate use or enjoyment by users
Finances (funding)	Any reference to money or finances used by or needed by the park

Educate	Any specific reference to the word as in educating the public about a subject, or any reference to other similar words, such as “interpretive materials”

Second Coder Review

To assess the replicability of the content coding, an uncoded list of words and phrases was sent to a second researcher for analysis. As the second researcher wasn’t sent the written code definitions, there was some definitional misunderstanding. In these cases, we chose to retain the coded analysis I had performed for each park.

For example, there were 34 instances where the second researcher and I had marked either “Policy” or “Action Item.” However, only 22 of these instances found the two coders in agreement, and five of these instances were scenarios where we had picked differing topics, 10 of which were scenarios where I had marked the statement as a policy while the second researcher chose neither Policy nor Action item. This wide discrepancy suggests that many of the statements I had identified as “policies” from this RMP, as well as the nine other sample plans, are, in fact, informal policies, rather than formal. While they don’t specifically identify as policies, they highlight some sense of priority through their language and intention. Had we operationalized these terms or had I given the second researcher the working definitions I had used, we likely would have had better agreement on our coding.

Results

Each sample park's RMP was reviewed to assess whether the stated goals within Utah State Parks' RMP are guiding state park managers' priorities and actions in protecting natural resources within the parks. Any content discussing natural resources within the park, such as water, soil, views, plants, animals, geology, etc. was reviewed for language which may have denoted a policy, action, or priority concerning that natural resource. The language for which I looked included literal mentions of the code words ("mitigate impacts" - Mitigate) as well as the general idea referenced ("Identify levels of acceptable change or measures to determine" – Reference Value).

I chose to evaluate this coding quantitatively in order to add significance to the repetition of certain code words and to more easily evaluate the results of those repetitions. An article in the Journal of Consumer Research, titled "Content Analysis in Consumer Research," stated, "Quantification of judgments distinguishes content analysis from ordinary critical reading" (Kassarjian, 1977). Quantification of content analysis also allows the study author to make objective inferences by analyzing the characteristics of the passages (Stemler, 2001).

There are 44 state parks, museums, and historic sites in Utah. Of these 44, only 33 have RMP publicly listed on the Utah DNR website. The following 11 sites do not have RMP listed with the other existing plans:

- Echo
- Frontier Homestead
- Goosenecks
- Green River
- Historic Union Pacific Rail Trail
- Millsite
- Otter Creek
- Piute

- Quail Creek
- Heritage Park
- Utah Field House

Of the 33 existing RMPs listed, 17 follow a standard format. The earliest RMPs listed with this "standard" format were created in 2001. This format began to be used around the early 2000's, though not every RMP from that time used this standard. The remaining 16 RMPs follow similar formats, often including maps, mission statements, history, physical descriptions, plans, and recommendations, but the specifics of these topics vary from plan to plan. Some of those plans which do not follow the "standard" format were created before 2001; however, some were created after this time and as late as 2013.

In choosing the ten sample parks to code and analyze, I had to choose among the 33 parks with publicly available RMPs. I chose to focus the majority of my analysis on parks that followed the standard format in order to try and keep consistency of data. In some instances, I tried to evaluate parks from outside this category (Starvation State Park), but the data was so vastly different from the standard format that I felt it would have skewed my content analysis. I did end up choosing one such park from outside the standard format, Goblin Valley State Park. The RMP for each sample was created in the following years (Utah State Parks, 2019):

Table 2

Year of RMP Creation

Park	RMP Year
Antelope Island	2009
Bear Lake	2005
Dead Horse Point	2007
Escalante	2005
Goblin Valley	1999
Gunlock	2006
Kodachrome	2000
Sand Hollow	2010
Utah Lake	2001
Wasatch Mountain	2010

The oldest plan in the sample RMP is Goblin Valley, written in 1999. The newest are Sand Hollow and Wasatch Mountains, both written in 2010. Of the 33 publicly available RMP on the DWR website, six of the plans were written more than 20 years ago. Other land management agencies, such as the BLM, also use land management or RMP to ensure changing conditions and demands on public resources are being met (BLM, 2016).

All of the following analysis and coding was related to passages about natural resources. There may have been other instances in the RMP where these code words were used, but they could have been referencing another topic, like recreation or safety.

Mission Statements

Nine out of ten RMPs had clear mission statements. These mission statements tended to focus on themes of:

1. Resource protection
2. Recreation
3. Education of the public
4. Cooperation (usually with the local community)

Other themes mentioned were conservation, plans, development, and finances ("positive impact on local economy").

So how did the coding compare with the mission statements? Figure 2 below is a pie chart showing the division of themes in the mission statements.

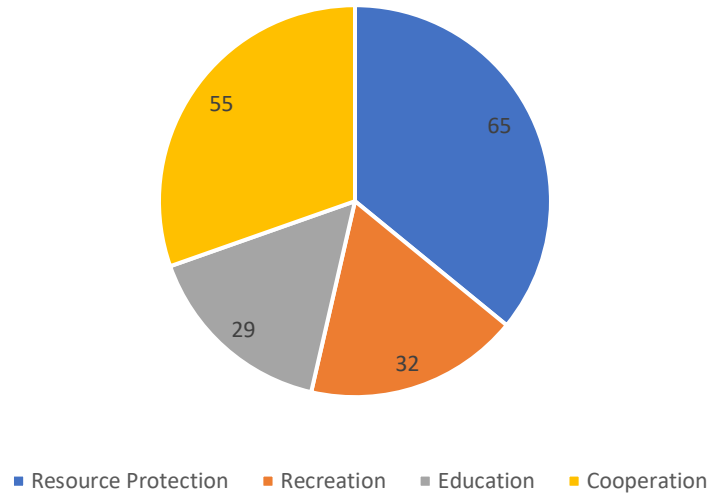

Figure 2. Division of major themes found in the sample parks' mission statements.

The results of coding show us that resource protection of natural resources was the most commonly mentioned theme in the RMP, referenced 65 times. A typical example of this type of passage follows: "Prepare an interpretive plan for the Park that emphasizes protection of resources and experiences." (Escalante)

These types of statements were often nestled in passages that included policies or action items: “Ensure that an evaluation of erosion impacts/required mitigation is included in any potential development project at the park.” (Kodachrome)

The second most commonly mentioned theme was cooperation, referenced 55 times. Utah.gov explains that approximately 75% of land in the state of Utah is publicly controlled (Herbert, 2020). This land is managed by the Division of Wildlife Resources, Utah Trust Lands Administration, National Parks Administration, Bureau of Land Management, Forest Service, and more.

Within each park there are many different roles that must work together to manage each park. These may include park director, wildlife manager, trail coordinator, biologist, naturalist, publication coordinator, interpretive coordinator, etc. Examples of the type of passages including themes of cooperation are: “Work with SITLA to develop cooperative management plans for SITLA-owned mineral rights in Park” (Dead Horse Point); and “Consult with Division of Forestry, Fire and State Lands (DFFSL) to determine how to limit cheat grass fire risk” (Dead Horse Point).

The third most commonly mentioned theme was recreation, referenced 32 times. The number, while significant, could be misleading, considering the fact that there are other, separate sections in the RMP that talk about managing the parks’ recreation facilities. This number only indicates times that recreation was mentioned in relation to natural resources. An example of such an instance is: “Work with the Irrigation Company to find ways to maintain a water level in Wide Hollow Reservoir that is adequate for recreation.” (Escalante)

The last theme was education, referenced 29 times. This theme usually referred to educating the public regarding natural resources. Several parks discussed plans to hire an "interpretive" coordinator or someone dedicated to creating educational materials and sharing them with the public. For example:

> Educate public/visitors about each plant's value and their rare and unique characteristics; seek public assistance by staying on trails, not collecting souvenirs, restricting off-road motorized use; utilize photos of the plants to educate public/visitors. (Kodachrome)

Policies

In general, there are very few formal policies listed for each state park. Most policies listed for each plan are, instead, an informal statement that denotes importance or a call for future action. For example: "Maintaining water quality is a high priority" (Sand Hollow State Park); and "Hunting will only be allowed as the management tool of last resort to control wildlife population numbers" (Antelope Island State Park).
Instead, parks often listed courses of intention as action items. For example: "Develop and implement a plan that identifies appropriate areas and methods for reestablishing native tree and shrub communities to the island." (Antelope Island State Park)
Throughout the ten sample parks' RMP, there was an average of 34 passages pertaining to biophysical resources for every two passages containing a policy about biophysical resources.

Action Item

The listing of action items was a much more common way for the RMP writers to denote priority for a subject. On average, throughout the ten sample parks' RMP, there

were 34 passages pertaining to biophysical resources for every 16 passages containing a policy about biophysical resources.

Closely related to "Action Items" was the word "Implement." This coding resulted in 13 instances of the word. Because this word so closely resembles other action words used in the action item statements ("adjust," "enforce," "explore," "investigate," "educate"), the 13 instances of the word "implement" were subsumed into the action items category.

Informational

All ten sample state parks had passages coded as "Informational." These statements were simply explaining some fact about a natural resource within the park for the benefit of the reader. For example: "The Gunlock area is bounded geographically by the Basin Range province to the west and the Colorado Plateau to the east" (Gunlock); and "The park maintains a bison population of 600-700 animals." (Antelope Island) Many parks have had additional reports written about them with much more detail about the geography, flora, fauna, etc. found within each park. These RMP are not meant to be exhaustive reports of natural resources, but rather an overview.

Protection Terms

Several of the terms coded had similar meanings. For example, "Resource Protection" (referenced 65 times), "Conservation" (referenced six times), and "Reduce Impacts/Mitigate" (referenced 30 times) all have related meanings. Use of the most commonly referenced term, "Resource Protection," varied from the general to the specific, as seen in the following examples: "Identify and protect important pockets of

habitat" (Goblin Valley); and "Use rock-type gabions or rock placement (rip-rap) to protect the soil." (Kodachrome)

6Rs

The following pie chart, Figure 3, shows the frequency of six "R" words all related to returning land or biophysical resources to a previous state.

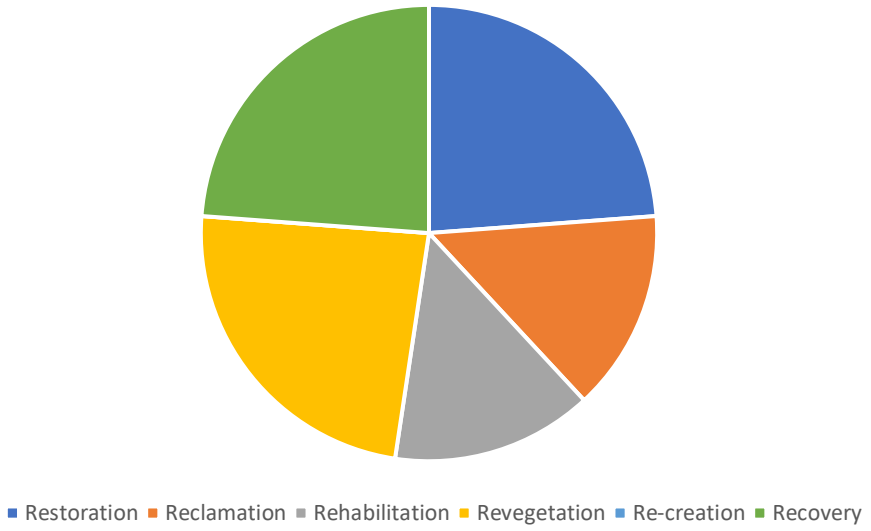

Figure 3. Six "R" words all related to returning land or biophysical resources to a previous state.

Specific use of the words was fairly even between the six terms, with the exception of the word "Re-creation," which was not documented at all.

Reference Value/Research/Investigate/Explore

Several of the coded terms related to research or monitoring. These are important terms to note because they allow researchers to form a basis for comparison. They are then able to gauge whether change happening to the natural resources within the parks is

moving in a positive or negative direction and to understand what is causing the change (US Forest Service, 2004). Analysis of the ten sample parks showed these results:

- Reference Value (benchmark, standard, trend, threshold) – 30
- Investigate/Research/Study/Explore – 25
- Monitor – 14

In total, there were 69 references to terms about reference values, "research," or "monitoring." This grouping of terms represents the largest number of coded terms from the entire analysis. Examples of these passages include: "Monitor implementation of access plan for impacts on island resources and visitor experiences, and if monitoring indicates that resources or experiences are being degraded, the park will take actions to mitigate impacts" (Antelope Island); "research should be undertaken to determine visitor impacts on rates of erosion and the stability of the goblins and other natural features" (Goblin Valley); and Investigate sand migration strategies, as, for example, what vegetation or structures are effective in stopping sand migration and stabilizing dunes" (Sand Hollow).

Educate

A significant finding from the research was the number of terms regarding education, 29 instances in total. Several of the parks' mission statements include a priority around educating the public about the park and its resources. For example:

> The mission of Wasatch Mountain State Park is to preserve and protect natural and cultural resources, provide a variety of rewarding and safe recreational and interpretive opportunities, while having a positive impact on the local and state economies. (Wasatch Mountain)

> The mission of Antelope Island State Park is to provide a variety of recreational, educational and interpretive, wildlife viewing and cultural opportunities, while conserving a unique island setting. (Antelope Island)

Other parks are using education as a means to help mitigate the negative effects of visitors on the parks' natural resources. For example: "Use interpretation to protect resources by educating park visitors about the uniqueness and importance of park resources" (Escalante); and "Educate park visitors to respect and preserve the Goblins – prepare interpretive materials." (Goblin Valley)

Finances/Funding

One term that did not receive many mentions was "Finances/Funding." With only 10 instances, this could mean that there is little worry from park management about properly financing the care and protection of natural resources. It should also be mentioned again that coding only looked at terms as they were related to passages about natural resources. Several RMP had separate sections solely dedicated to this topic. The topic headings in several of the parks' indexes were:

- "Funding and Revenue Enhancement" (Antelope Island)
- "Budgets, Staffing, and Funding" (Sand Hollow)
- "Funding, Staffing, and Operations" (Utah Lake)

These separate sections would deal more directly with the topics of funding.

Development

As park visitation continues its increasing trend, park managers must often make decisions about how to accommodate those visitors in visitor centers, campgrounds, bathrooms, parking lots, etc. The building of these facilities often has a direct impact on the natural resources of the park. Passages about "development" as related to natural

resources often centered around recommending that park officials be cognizant of the effects of development on natural resources. Passages included: “Identify strategies to protect critical wildlife habitat and movement in connection with development and placement of all new trails and roads” (Wasatch Mountain); “Evaluate facilities, roadways, new development and recreational use impacts to prevent surface and groundwater contamination” (Kodachrome); and “Maintain habitat for mule deer and other wildlife species and consider impacts on habitat when planning new development.” (Dead Horse Point)

Discussion

The age of the RMP was unexpected. With an average age of 14.8 years old, many of these parks have seen manifold changes in that time, including a financial management change, an increase in visitation, and addition of recreation amenities. The oldest RMP listed on the DWR website are 22 years old. These include some of the most highly visited parks in the state according to visitation numbers (Goblin Valley and Snow Canyon) (Park Visitation Data, 2019).

Another surprise about the RMP was the fact that 11 state parks (one quarter of all parks) do not have publicly listed RMP on the DWR website. With six of the 44 plans being more than 20 years old and 11 others not publicly listed on the website, that leaves more than one third of parks without a current, publicly-available RMP. The following chart (Figure 4) compares the age in years of the ten sample parks’ RMP:

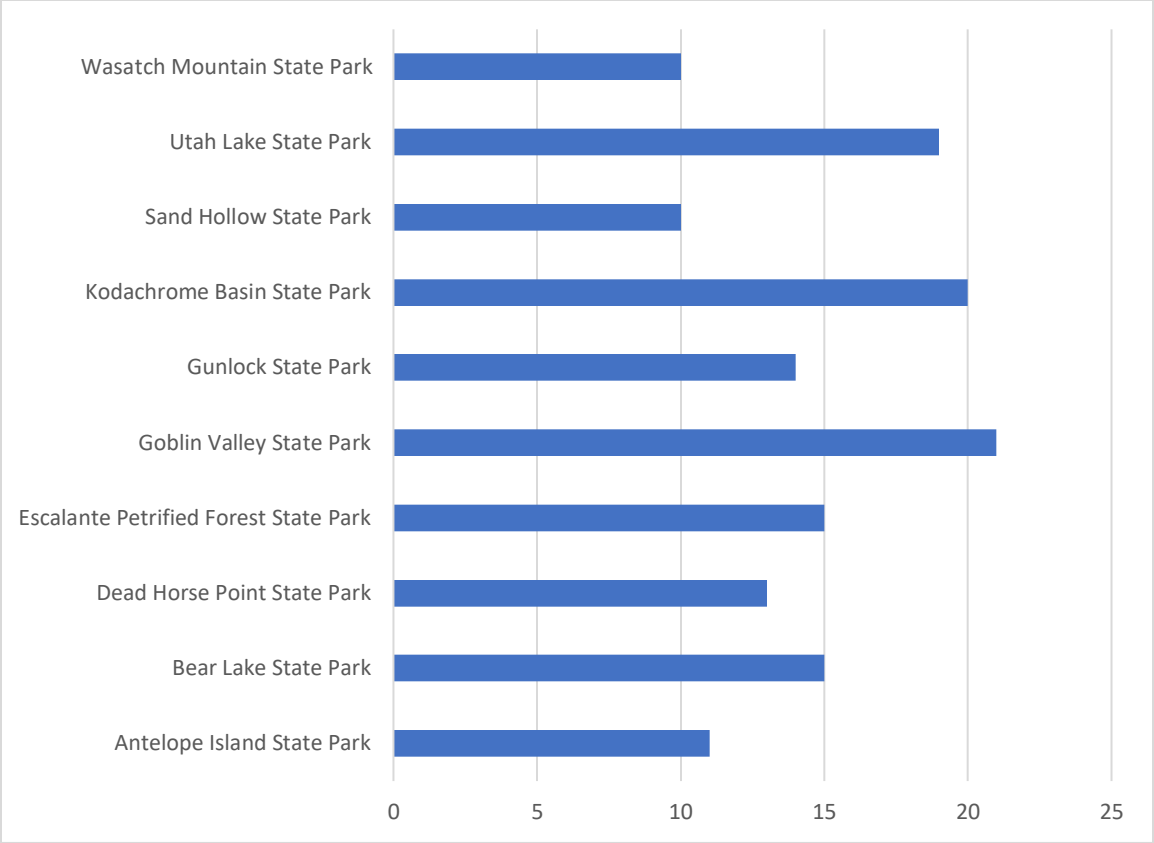

Figure 4. A bar chart comparing the age, in years, of the ten sample parks' RMP.

The following chart (Figure 5) compares the age in years of all parks' RMP:

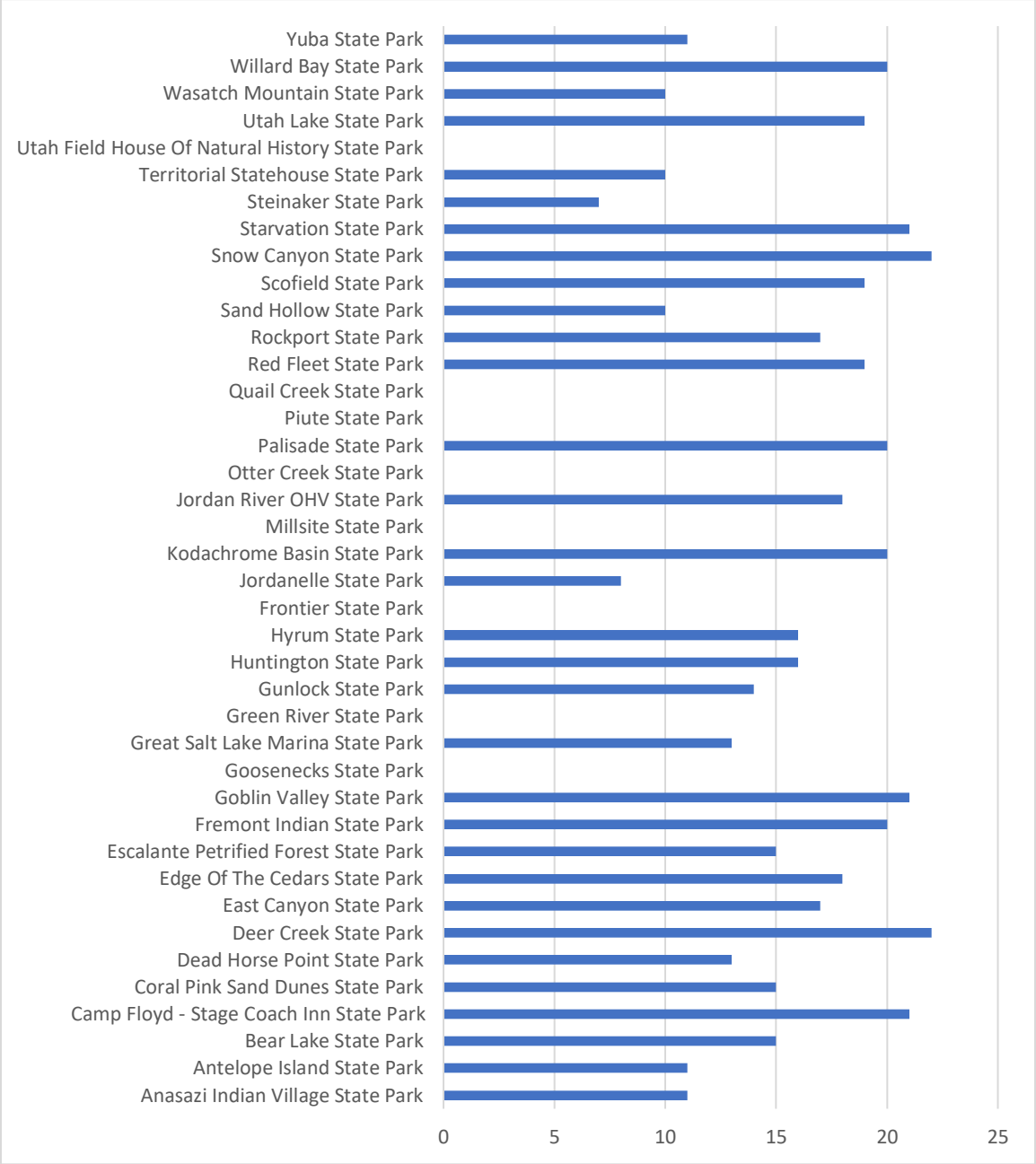

Figure 5. A bar chart comparing the age, in years, of all Utah State Parks' RMP.

Mission Statements

As was mentioned above, nine of the ten state case study parks had clear mission statements. The one exception was Gunlock State Park. This reservoir-based park is located in the Southwest region, not far from St. George. Reported visitation numbers vary widely since the time of the writing of its RMP. However, it reports seeing up to 60,891 visitors on an annual basis. For a park of this popularity, it was surprising to see its RMP without even a mission statement. Generally, the number of coded words seemed in line with the priorities outlined in most of the parks' RMP.

Policies vs. Action items

The ratio of passages about natural resource to policies was 34.4:2.1, while the ratio of passages about natural resources to action items was 34.4:16.7. This says to me that state park managers are thinking more in terms of specific jobs and actions to be accomplished (a short-term view), rather than holistically managing resources (a long-term view). For example, Dead Horse State Point wrote, "Consider surcharge addition to fees or other creative means to purchase lands, development rights, and/or conservation easements from SITLA."

Were this topic considered with a long-term view, it may have been written, "In order to protect the integrity of the park and surrounding lands, it is important to acquire ownerships and control of land around Dead Horse State Park through land purchases, development rights, and/or conservation easements from SITLA. Thus, surcharge additions to fees and all other creative means shall be considered to raise funds for such actions." However, according to my definition of both policies and action items, these two categories are very similar and both denote priorities regarding natural resources.

The purpose of the RMP is to "help guide the Utah Division of State Parks and Recreation's stewardship obligations for (state park)." This is a statement listed in most of the case study RMP. Each RMP was created by a task force of individuals, including a variation of park managers, local government leaders, and community members. It's interesting to me that there are so many specific action items listed rather than policies or general directions for the park, considering that the direction for the parks comes from a "foundation of public input and consensus of key stakeholders, rather than by the unilateral direction of the Division of State Parks and Recreation." This statement, or a variation of it, is found in most of the RMP's purpose statements.

I would have thought the plans would have weighed in more heavily on general directions and policies, ideas that the public and community stakeholders could identify with, rather than specific actions that only park managers and staff or Division of State Parks and Recreation representatives would know about. The exception to this analysis was Gunlock State Park, which didn't list a mission statement, any policies, or action items.

The following word cloud shows each of the terms coded for with the text size relating to the proportion of times it was coded throughout the ten plans.

Figure 6. Word cloud representing the proportion of times a word or word-type was used in RMP.

Protection Terms

The umbrella term "Resource Protection" was one of the most commonly coded terms throughout the analysis. Generally, this topic was approached from two different directions, either from a point of conservation or from a point of mitigation. Conservation is defined by the International Union for the Conservation of Nature and Natural Resources (IUCN) as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to the present generations while maintaining its potential to meet the needs and aspirations of future generations" (IUCN, 1980). Mitigation, on the other hand, is the act of "making less severe," as in the case of Section 404 of the Clean Water Act (Hough & Robertson, 2009). The specific language used in the RMP had almost five times as many instances of reducing impacts or mitigating damage already used as language about conservation or preventing damage from

occurring in the first place. Related to the "mitigation" phrases were the "6Rs" (Restoration, Reclamation, Rehabilitation, Revegetation, Re-creation, and Recovery).

Reference Value

In total, there were 69 references to terms about reference values, "research," or "monitoring." This grouping of terms represents the largest number of coded terms from the whole analysis. Scott Strong, Deputy Director of Parks and Recreation, has said, "Baseline measures are established at the local park level by park managers who are the local experts" (Strong, 2019). This also means that any scientific data gathered within the park, either by the park staff or by a different entity, such as DWR or a university group, should be measured against scientific baseline measures already in place at the park level. This large number of coded terms indicates that actions concerning natural resources are being based on reference value and research. This is an important finding because it allows park managers to remain impartial in their justifications of their actions.

The National Park Service Advisory Board has stated that "A sophisticated knowledge of resources and their condition is essential. The Service must gain this knowledge through extensive collaboration with other agencies and academia, and its findings must be communicated to the public, for it is the broader public that will decide the fate of these resources" (National Park Service, 2019).

Education

There were 29 instances of the term "education" in the ten case study parks. While this finding was significant, it was lower than I thought it would be, considering that education of visitors about natural resources is one of the main tenets espoused in the Division of Wildlife Resources' mission statement. A trend I saw concerning this term

was that it was often proposed as a method to help mitigate damage to natural resources rather than as an intrinsically important tool for education about natural resources.

Utah Division of Parks and Recreation Strategic Plan

The Utah Division of Parks and Recreation Strategic Plan was written in April 2017. This document outlines the values and goals the Division intends to accomplish. In order to better understand the priorities of the Division as a whole, I completed the same content analysis on this document that I did on the ten sample parks' RMP.

Because individual park managers are meant to create specific goals and actions for their park, these types of goals and statements regarding natural resources were limited in number in this document. In the entire document, there are three mentions of the idea "resource protection." One of these is repeating the mandate charged to the Division of Parks and Recreation by the Utah state legislature in 1957. In total, "natural resource" is mentioned four times. Other coded words found in this document in reference to natural resources were "plan" and "educate."

As a related aside, one word that was found often in this document was "recreation" in the active tense, which is mentioned 17 times. Another oft-used term was the combined use of the words "capital," "profit," "money," "revenue," and "finance," which are mentioned 13 times. There are 11 stated goals in the strategic plan. Three of these goals pertain to finances within the parks, three goals pertain to recreational opportunities within the parks, and there are no goals pertaining to natural resources within the parks.

Conclusion

The coding and analysis process uncovered trends that were both surprising and reassuring. A majority of the parks' stated values and priorities were supported by high instances of specific coded words used in their RMP. Most of the case study parks listed many ways in which they were addressing need and concerns about natural resources through action items or plans for future collaborations. The next step in this analysis was interviews with the case study parks' directors to better understand whether the stated actions and priorities were being fulfilled through current action at the park level.

CHAPTER 5: INTERVIEW OF PARK MANAGEMENT

Introduction

The purpose of this study is to analyze the rigor of Utah state park management plans and determine whether park managers are fulfilling the objectives stated in their general management or resource management plans (RMP). The objective of this portion of the study is to analyze and discuss the results of phone interviews conducted with park managers of the ten sample parks.

The RMPs of 10 sample parks plus the guiding document of Utah Parks and Recreation were analyzed for key themes and code words, as described in Chapter 4. All the park managers for these 10 parks were contacted about setting up interviews for this portion of the research. Interviews were subsequently conducted with the park managers for the following eight parks:

1. Antelope Island
2. Bear Lake
3. Dead Horse Point
4. Escalante
5. Goblin Valley
6. Gunlock
7. Kodachrome
8. Wasatch Mountain

The managers for two parks, Sand Hollow and Utah Lake, both responded to initial requests to participate saying they were willing to help, however, were unresponsive to requests to participate in the actual interviews. The following sections present the results from the interviews with park managers with respect to the priorities and planning policies described in each state park's RMP.

RMP Interview Analysis

Responses to "**How long have you been director at this park?**" ranged from 14 years to 2 months. The average response was 4.3 years. Figure 7 is a bar chart comparing the number of years each park manager has been the manager at their specific park.

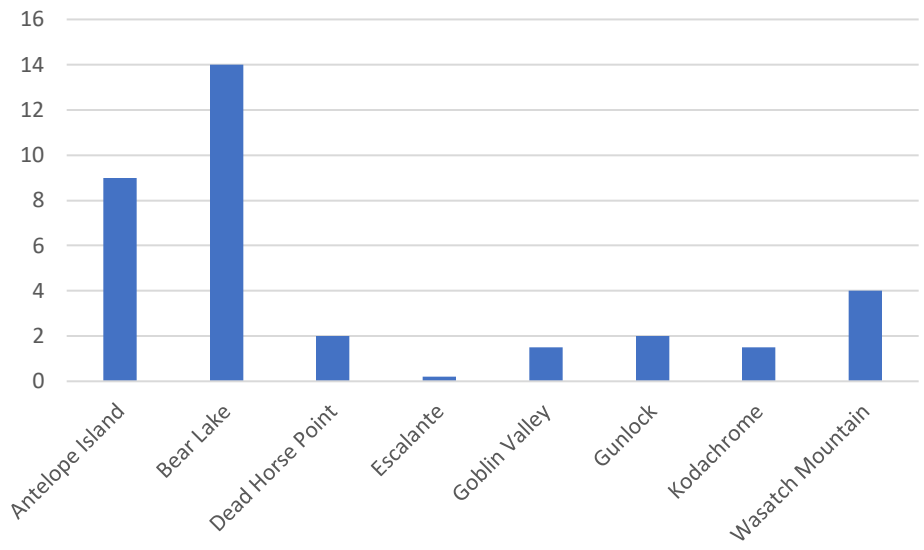

Figure 7. Number of years each park manager has managed their park.

Only three respondents were state park managers during the 2011-2012 management style shift. If this pattern holds true for all state park managers across the state, this may result in park managers who place a stronger emphasis on business management, rather than natural resources, because they were not with state parks prior to the shift in management style.

Is the RMP listed on the DWR website written in (year specific to each park) still the current RMP referred to today? For all parks, the response was "yes." The RMPs analyzed for this study range from 10-21 years old. This is a representative sample

of the age of all RMPs listed on the Utah Parks and Recreation webpage. See Figure 5 for a bar chart comparing the age of each sample park's RMP. Anecdotally, responses to this question ranged from, "We'll look at updating it, but it's still fairly close to on target," to "all RMPs are pretty much outdated by the time they get published."

All ten of the sample parks analyzed have RMPs which were written before the 2011-2012 shift in management style. Thus, any shifts away from a natural resource focused management style to a business focus would be a deviation away from the parks' RMPs – a change which has not been reflected in updated RMPs.

Do you have plans to update or rewrite the RMP? If so, when will that happen? A few park managers responded that a new plan had been discussed or begun, but all such plans had been abandoned in the past few years. Some responded that they would like to see a new RMP plan written. One park manager said, "I want to see it done, but I don't know how to make that happen." However, another expressed a strong desire to stay away from RMPs and stick with the Business Plans.

As written in the Business Plan for Dead Horse State Park, these plans are written strategic documents meant to "help the park operate more efficiently, to maximize park revenue, and to help the park become more self-sufficient" (Dead Horse Point State Park Business Plan, 2010). The Table of Contents from this document, as shown in Figure 8 below, shows the content of this plan.

Table of Contents

Figure 8. Table of Contents from the document, Dead Horse Point State Park Business Planning Strategies 2010-2013.

This document was used as a guiding document until 2015, when the park switched to using a strategic plan. As the park manager for this park explained, the current strategic plan is a "living document instead that staff edit on a routine basis as things change" (Hoyt, 2020). As this park manager opined in his interview, "Using the strategic plan and then building a business plan that ties to that and links in ecology would the ideal proposal for all parks to stay on top of." A shared idea seemed to be that none of the park managers had direction from the administration in Salt Lake about the current or future plans for RMP, and no park has the manpower or time to write a new one on its own. At the time that each of these RMP was written, there was a planning division in Salt Lake of five individuals, which no longer exists.

Have stated or unstated priorities changed regarding natural resources since the RMP was written? If so, how? Answers varied to this question. Five park managers

said priorities have changed as they are now more focused on business/self-sufficiency. Three managers said no, priorities haven't changed. However, they all agreed that there is more focus on business and less on resources. One park manager summarized it well:

> Prior to the 2012 shift there was more focus on resource management and resource protection, and now it's business development. That's a function of leadership. That's the biggest problem with trying to compare the two. Twenty years ago, there was different direction.

How often are RMP policies and goals referred to and communicated to staff? Answers varied from "pretty regularly" to "always" but all agreed they talk with staff about their resource goals and policies on a regular basis. Most of the parks studied have relatively small staff. For example, many managers responded that their staff is made up of themselves, a park ranger, and several seasonal staff. Seasonal staff are trained at the beginning of the busy season, but these staff do not necessarily return year after year. In response to this question, one park manager replied, "When it comes to our seasonal staff, we touch upon the points as needed."

What percentage of park director's time is spent on biophysical resources?

Answers to this question ranged from 60% to less than 5%. Notably, those respondents who spend the most time on resource issues – Antelope Island (40-50%), Bear Lake (20-25%), and Wasatch Mountain (60%) – are also those who have spent the most time as directors of their parks – 9 years, 14 years, and 4 years, respectively – and the most time in the State Parks organization generally. On the other end of the spectrum, park managers who spend the smallest amounts of time on natural resources – Dead Horse Point (10%), Goblin Valley (<5%), and Kodachrome (13%) – are those who have

been park managers for the shortest amount of time – 2 years, 1.5 years, and 1.5 years, respectively. The following bar chart (Figure 9) shows a bar chart representing the percentage of time park directors spend on issues relating to biophysical resources.

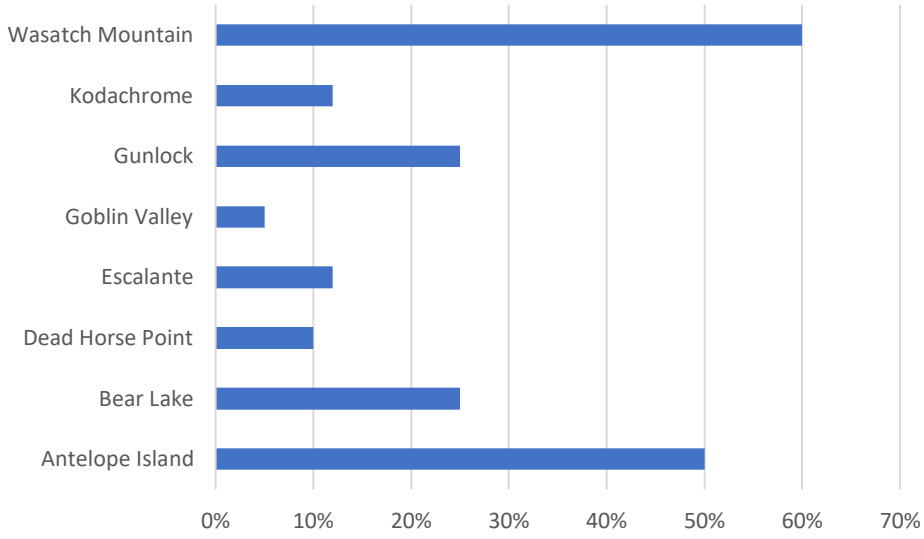

Figure 9. The percentage of time park directors spend on issues relating to biophysical resources.

What percentage of park staff's time is spent on natural resources? The responses were not as clear on this question. Larger parks have dedicated staff, like wildlife biologists, who spend 90% of their time on natural resources. Smaller parks with smaller staff spend much less time on natural resources, with answers including 25-30%, less than 10%, and less than 5%.

The takeaway from these responses was that the staff generally spent less time than the park director on issues pertaining to natural resources. Park directors did not have a firm grasp on the exact amount of time their staff spend on natural resources in a

calendar year. Answers varied from, "Probably half, maybe 40%" to "We work together to do what needs to be done for that time of the year" to "They probably do less (than the park director)."

How large is the staff surrounding care and management of natural resources – i.e. biologists, botanists, hydrology experts, wildlife management, etc.? The staff size at parks varies depending on the size of the park and the number of visitors at that park. Seven of the eight respondents indicated that their parks do not have a dedicated employee (besides themselves) focused on the care and management of natural resources.

The only park with a dedicated park biologist and park naturalist was Antelope Island, one of the more visited parks in the state (Antelope Island came in fifth in visitation at all parks during fiscal year 2017-18 with 496,023 visitors) (Utah State Parks, 2020). Many of the park managers hinted or suggested that they are understaffed generally.

Concerning natural resources, how much time is spent in restoration projects compared to mitigation? Answers varied around 50/50, although many commented that they thought the two were closely related. No definition of the terms "mitigation" and "restoration" was given in my initial asking for the question, and answers seemed to reflect that park managers don't necessarily define their actions into the two categories. As one park manager responded, "I don't break the two up."

What are the major visitor impacts to natural resources? The majority of answers centered around people creating "social trails" (visitor-created trails). Or as one park manager says, he asks himself, "how do we keep these visitors on the trail system so

they're not going off trail and creating social trails and so they're minimizing that impact?"

The next most popular answers were litter and general wear and tear on facilities and infrastructure. A typical answer sounded like this park manager's response: "Keeping the numbers down so we don't overrun the facilities." All of these impacts stem from an increased number of visitors at the parks, especially in the current times with COVID-19. One park manager said, "Our huge focus is accommodating the growing number of users. A lot of that is infrastructure, it isn't really designed for the number of users we have."

What programs or projects are underway to address natural resources? The answers to this question fell into four groups:

1. Adding signage and fences to keep people on designated trails and removing social trails.
2. Maintaining and adding infrastructure to accommodate the growing numbers of visitors.
3. Tracking for Quagga muscle.
4. Night Sky initiative.

Notably, only one park manager each mentioned answers three and four.

In the coding analysis of these ten parks' RMPs, terms indicating reference value research, such as "research" or "monitoring" were mentioned 69 times throughout the ten RMP. This grouping of terms represented the largest number of coded terms from the entire coding analysis. Interestingly, the only project or programs mentioned to address natural resources in the parks today were "Tracking for Quagga" muscle and "Night Sky Initiative" (each mentioned once).

How much of a priority is maintaining or improving natural resources compared with other tasks? Are there competing priorities? Especially for parks with higher visitation, park directors' main competing priorities are:

- administrative tasks
- meetings
- generating revenue
- facility management

One park director made the comment, “With a staff size this small, only 6 people to take care of 400,000 visitors, natural resource is of the lowest concern.” Another director of a large park said:

> We do more crisis management then we do good management because we are very short on staff. Last night I had a night shift to clean bathrooms because we are short-staffed. Things that should be getting done, aren’t.

What’s the biggest impact on natural resources in your park? This question might as easily have been phrased “Who has the biggest impact on natural resources in your park?” The most common answers were:

1. Increased visitation
2. Erosion
3. Keeping people on trails
4. Wear and tear generally

With a 52% increase in visitation between the years 2013-2018 (presumably those numbers have continued to increase from 2018-2020), these are impacts that will continue to exacerbate with more visitors (Park Visitation Data, 2019).

Has the change in management style, and the change in the way the budget is run, created any impacts for natural resources? Two different park directors shared with me a quote from a previous Parks and Recreation Division director, who said, “We’re managing the people for the resource and the resource for the people. And we’re protecting the people from the resource and the resource from the people.”

The general consensus was that the focus post-2012 is on business and revenue generation. Before the 2012 changes, things were managed differently, with a greater focus on the resources. However, most of the park directors believe that this change in management style was for the betterment of both resources and visitors. One park manager said, "I think it's run better. I think that the quality of experience that visitors are getting is higher because it's had to be."

Another said:

> If there's not a business model set up to maintain or take care of the area, you see areas get really worn out, and the quality of experience goes down. And then the quality of visitor goes down.

And lastly, "Pre-audit, there were more documents written about resource management, but not necessarily on-the-ground work."

In coding the RMP of the ten sample parks, the term "resource protection" was the most common term in relation to natural resources, used a total of 65 times. The specific term "infrastructure" was found one time, and general terms regarding "development" were found 31 times in sections pertaining to natural resources. The focus of the state park managers has (admittedly) shifted from natural resources to business development and infrastructure, while the written documents guiding the care of these resources has not.

What is the biggest challenge currently facing your park? What keeps you up at night? The majority of answers centered around maintaining or improving infrastructure and being able to accommodate the increase of visitors. Several mentioned

a need for more staff to handle the workload in their parks. Only one mentioned the challenge of growing the park and increasing visitation.

Generally, most parks have as many or more visitors than they can handle and don't have the proper facilities or staff to handle it. Two responses dealt with challenges related to natural resources: keeping people on trails and managing invasive species. The synthesis of the previous questions leads to the conclusion that more visitors equals more wear on infrastructure, and more wear on infrastructure leads to more wear on the natural resources. The focus in this train of thought is first on infrastructure and second on natural resources.

The following questions, **"What types of scientific data do you currently have about your park's natural resources?"** and **"What data sets do you gather on a regular basis?"** are summarized in the table below:

Table 3

Data Sets Collected in State Parks

Coded Term	Definition
Antelope Island	-Wildlife and range data -Use patterns to see how trails are faring/signs of overuse
Bear Lake	-Air and water temperature -Health department checks fecal matter levels
Dead Horse Point	-Used to do bird surveys -Keep tabs on weed species and where they are and whether it's spreading -Dark sky readings
Escalante	-Usage – numbers of people coming in, the number of sites being used -Water clarity -Green algae
Goblin Valley	-Dark sky -Annual photographs to check erosion

Gunlock	- Dark sky -E-coli and quagga sampling -Computer program to track where boats have been
Kodachrome	-Daily weather data -UNLV is doing a geology study they've been monitoring
Sand Hollow	N/A
Utah Lake	N/A
Wasatch Mountain	-We work with Division of Water Quality testing for arsenic, phosphates -Beetle kill and sagebrush vs. rabbitbrush deterioration

Answers ranged anywhere from wildlife and range use patterns to weed species locations, dark sky readings, water quality, erosion photograph series, and quagga sampling. This wide variety of answers makes sense when considering the policy regarding data collection for state parks. As Scott Strong, deputy director of the Division of Parks and Recreation has said, "Baseline measures are established at the local park level by park managers, who are the local experts."

The parks each collect an average of two different types of data about natural resources. Several, however, admitted to not conducting their data collection in a very scientifically accurate manner, and others admitted to not having the knowledge or funds to do proper data collections. When considering that the RMP had a collective 69

instances of terms such as “research” and “monitoring,” an average of two data types per park (some of which are water quality readings, mandated by local health organizations), this is a far departure from the RMP.

Are there data sets that you need to have before making changes in your park, but don’t have yet? If so, what are the barriers to collecting that data? About half of the respondents said they had interest in doing some sort of research but had some barrier, such as knowledge of how to proceed, funding, or time. One park manager said, “I’d like to do some erosion studies. I’m not sure how to go about that.”

A few others said they either had no need for any data or that the work they are currently doing doesn’t require any additional data collection. One park manager commented, “My operation isn’t stopping because I don’t have some sort of data. But that doesn’t mean there’s not data that could be collected.” Another responded, “Not right now, no. Not that I can think of.”

What percentage of actions regarding natural resources come from park level and what percentage comes from DWR?

These responses were wildly varying. Everything from far ends of the spectrum answers, such as “99% from us at the park, 1% moral support from administration,” or “Majority comes from our division offices,” to middle-ground answers, such as “60% administrative, 40% us” or “70% me and 30% administration,” or “80% comes from me as long as I’m doing what they want me to do.” The sense of locus of control changed drastically from park to park. This wide variation in sense of control is paired with a widely varying sense of responsibility for natural resources. The mission statement of the Utah State Parks organization states:

> To enhance the quality of life of Utahns and visitors by **preserving and providing natural**, cultural, and recreational resources for the enjoyment, education, and inspiration of this and future generations.

This mission statement aligns with the sample parks studied. In coding the mission statements listed in the RMP, the top priorities listed in the mission statements were:

1. Resource protection
2. Recreation
3. Education of the public
4. Cooperation (usually with the local community)

These priorities do not align with the stated priorities and concerns listed by park managers in these interviews.

How much has visitation increased at your park in the last 10 years? Since the RMP was written? This was another question where answers varied, both in response types and in the numbers reported. This could be because the increase in numbers of visitors has varied from park to park. It could also be because the park directors don't have an exact idea of how much visitation has increased at their park. Answers included: "In the last 10 years, 3,000%," "I'd say around 50%, maybe more like 100%," "Nearly double," and "Up 5% from last year." Several park directors admitted to being uncertain that visitation numbers are being accurately counted. One said,

> We used to have entry counters, every time a vehicle drives over, it counts it, and then a formula guesstimates how many visitors came to the park. Then they went to doing it based upon revenue. We don't know exactly how it's done. Our fees haven't doubled, but we're seeing a lot more people. To have visitation nearly double in 15-16 years but yet revenue has more than tripled?

Another said, “Today we’re listed at 330,000, but that’s not accurate. I’d put us more at 400,000. It’s 10X from 2005/2006.”

For a group of park managers whose main stated concern was increased visitation and the wear and tear that comes with that, they did not have a clear idea about exactly how much visitation had increased or how that visitation was calculated. Below is a table showing the percentage increase of visitation at each of the ten sample parks from 2008-2018, according to the Utah Parks and Recreation website:

Table 4

Percentage Increase of Visitation at Each of the Ten Sample Parks from 2008-2018

State Park Name	% Increase 2008-2018
Antelope Island	93%
Bear Lake	71%
Dead Horse Point	315%
Escalante	51%
Goblin Valley	324%
Gunlock	-36%
Kodachrome	139%
Sand Hollow	286%
Utah Lake	-67%
Wasatch Mountain	15%

A line chart shows the visual change in visitation numbers over the years 2008-2018, as seen in Figure 10 below:

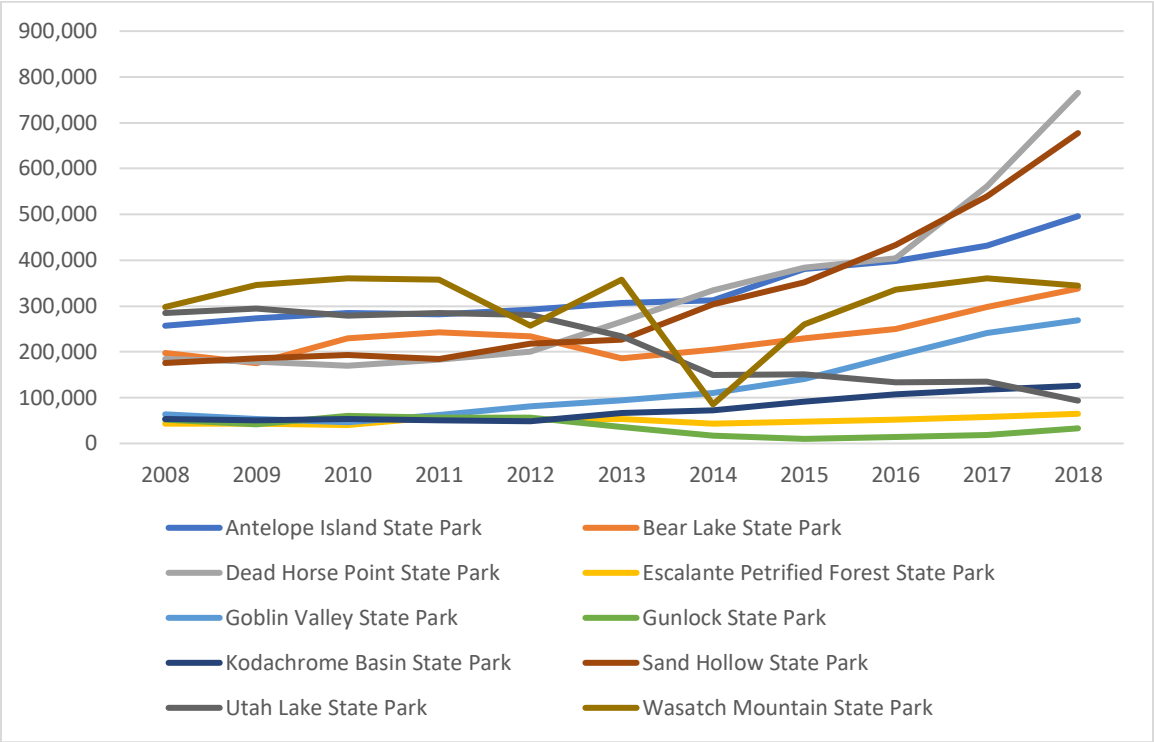

Figure 10. Annual visitation numbers to the ten sample parks from 2008-2018.

A second line chart (Figure 11) shows the visual change in visitation numbers to all Utah state parks over the years 2008-2018, as seen in Figure 13 below:

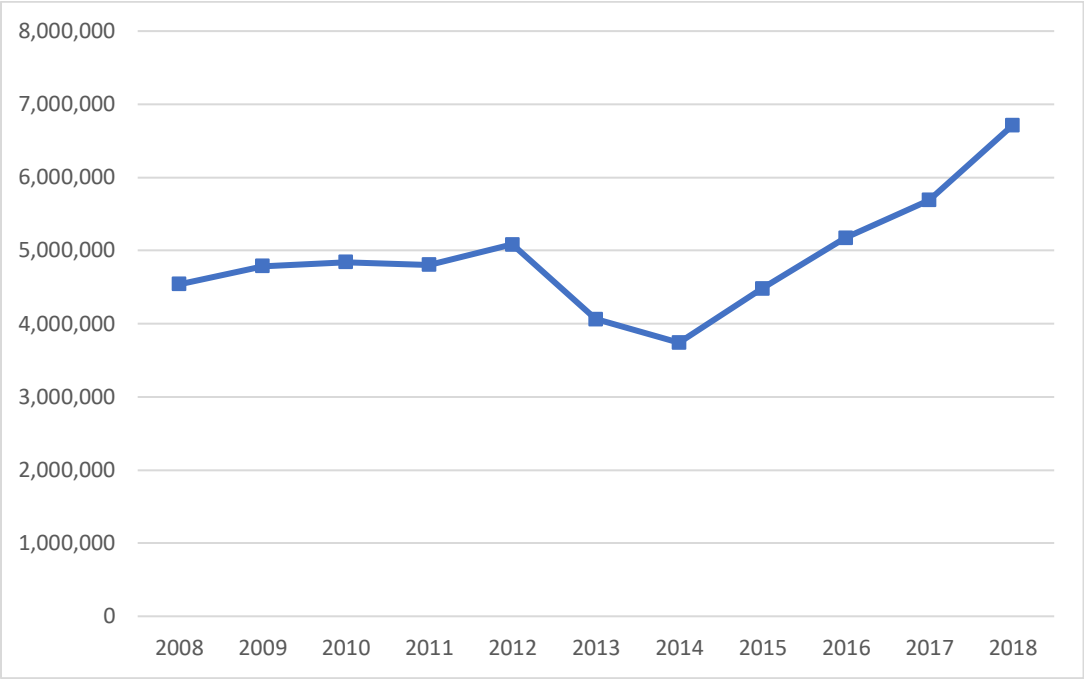

Figure 11. Annual visitation numbers to all Utah state parks from 2008-2018.

In addition to the above questions, two to three goals were chosen from each park's RMP. These goals were shared with the park manager, who was then asked whether the goal had been accomplished. Examples of the types of questions asked included:

- To better inform and educate the public about areas open to motorized use, coordinate with federal and county agencies and update maps, brochures and other public information. Was this action taken? Did it decrease the number of unauthorized trails?

- Identify levels of acceptable change or measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems. Was this action taken? What scientific methods were employed for identifying levels of acceptable change?

A total of twenty questions were asked to eight park managers. Eleven of those had a response of "yes," meaning the goal was totally or mostly accomplished, four responded with "partial," meaning the goal was partly accomplished or attempted, and five had a response of "no," meaning the goal wasn't attempted, or was begun but not finished with any results. These results don't provide any conclusive results about what percentage of each park's RMP goals have been accomplished or are being worked on, but it is a small insight.

Park managers were also asked for any additional thoughts about the RMPs. The question was open-ended. All responders agreed that the RMPs were a good thing and did help guide the protection and management of natural resources in the parks. One park manager responded:

> RMPs are good. They're a good guiding tool for us to use. It's nice to know that it's not just a focus on money, on finances, but also on management of protected species. I think our RMP is still working.

Another responded, "Natural resources are a big part of why we're here. Both protecting and using them."

In terms of the continued relevance of the RMPs, answers were split between feeling like the RMP was still relevant and applicable today and thinking that they are outdated and need to be redone. One park manager commented, "I looked through it (RMP). Does it need to be updated? I'm sure it wouldn't hurt it to update or tweak it." Another responded, "The plan has been sufficient."

On the other hand, some park managers lean more heavily on the park's business plan and focus their time and efforts on the business and money-generating end of things.

One park manager said, "The business plans are a better approach to the resource-based, natural resource plans. Money's not everything, but it is." Another park manager commented about this disparity in viewpoints, saying:

> A lot of the difference you will see in these interviews will be based on how long the manager has been working for state parks. I think it's nationwide that more and more pressure has been put on state parks to be run like a business. New state park managers will lean heavily on business.

One point of agreement amongst all park managers, regardless of their preference for a business-based or natural resource-based management approach was that none had a clear idea of the future of RMPs – if or when they will be rewritten. Comments included: "I don't know what the future of those plans are from our administration's viewpoint;" "There's no more planning division back in Salt Lake to help us with it (rewriting the plan);" "No, I haven't heard anything from administration in Salt Lake."

The closest any park is to updating or rewriting a plan is Bear Lake State Park. The park manager, Richard Droesbeke, made a proposal to gather preliminary information about his park's plan, what has been done, and how to move forward from here. He is working on resurrecting the committee that was used to write the current plan in order to begin updating or rewriting the plan. No oversight or direction has been given from Utah Parks and Recreation about that process.

CHAPTER 6: SYNTHESIS AND DISCUSSION

The purpose of this study was to analyze the rigor of the Utah State Park resource management plans and determine whether park managers are fulfilling the objectives stated in their general management or resource management plans. The objective of this portion of the study is to synthesize the data gathered and discuss how those data points relate to each other and how they relate to the purpose and hypothesis of this study.

Background

In creating context for the value of this study, it is important to understand the recent history of management of the parks. Prior to 2012, the Utah State Park System received one-third of its revenues from the Utah General Fund to cover primarily operating deficits. After 2013, the General Fund appropriation was reduced by two-thirds. Now, Utah State Parks are each operated as "individual business units," and each park manages its own finances, assets, and natural resources. While there is some oversight from the Utah Division of Parks and Recreation, individual park managers are primarily responsible to "protect and interpret each park's natural and cultural resources, ensure safe and enjoyable experiences, provide for new visitor opportunities, and develop and enhance facilities" (stateparks.utah.gov/resources/planning-and-development). Park managers are also primarily responsible for the financial health and well-being of their park.

This study was conducted under the assumption that natural resources are an important consideration in the management and care of Utah's state parks. The mission statement of the Utah State Parks organization states:

> To enhance the quality of life of Utahns and visitors by **preserving and providing natural**, cultural, and recreational resources for the enjoyment, education, and inspiration of this and future generations.

The methodology for this study included picking ten sample parks of varying visitation rates, physical regions, and natural resources. Each park's RMP was then coded, looking for specific words related to natural resources in order to gain a better understanding of the stated priorities in the RMP. Next, I conducted semi-structured phone interviews with eight of the ten sample park managers to analyze whether the priorities and policies outlined in the RMP are the same as those being practiced today.

Discussion of Results

This study shows a shift away from a natural resource-focused management style to a business focus. This is a deviation away from the policies found in the parks' RMPs, which were written before the 2012 shift in management style. The large disparity between the written priorities in the RMP and the stated priorities and actions of the park managers in interviews show a clear change in course from when the RMPs were written, between 10 and 21 years ago. I pursued this study on the premise that there was a disparity between RMPs and current managerial practices due to:

1. change in operating structure in the parks in 2012;
2. increasing visitation; and
3. the age of the parks' RMPs.

(1) Analysis of the RMPs revealed a strong focus on actively managing natural resources within the parks. There was a high ratio of passages about natural resources to action items pertaining to natural resources, 34:17, and a lower ratio of natural resource

passages to policies about natural resources, 34:2. This seemed to me to be a short-term view, rather than a long-term view about natural resources.

Policies at federal agencies, such as those put in place by the BLM, have stated that land-use plans are revised and updated as conditions change and as demands on the public resources require (BLM.gov). Accordingly, a short-term view of resource management in Utah state parks would not be inconsistent with the understanding that the RMP would be updated regularly. As an example, the US Forest Service is mandated to revise its RMP every 15 years (Riddle & Hoover, 2019, pg.10).

Yet, of the 33 publicly available RMPs from the 43 parks in the Utah State Park system, 28 are more than 10 years old, and six are more than 20 years old. The RMP for Utah state parks are not being updated regularly and visitation continues to increase, as I will demonstrate below. Therefore, short-term objectives and goals will be less effective than they would be if RMP were updated on a more regular basis or written, instead, as long-term goals.

After the change in operating structure referred to previously, responsibility for actions such as data collection was moved primarily to the parks. As Scott Strong, Deputy Director of Parks and Recreation, has said, "Assessments are constantly being performed at our parks by our park staff. Baseline measures are established at the local park level by park managers, who are the local experts" (Strong, 2019). This also means that any scientific data gathered within the park, either by the park staff or by a different entity, such as DWR or a university group, should be measured against scientific baseline measures already in place at the park level. This management structure was reflected in the RMP coding. Use of the term "resource protection" was used 65 times throughout the

ten RMPs – more than any other single term coded. Other frequently coded terms were reference values (such as “research” or “monitoring”), referenced 69 times, and “educate” (used 10 times).

Interviews with park managers presented incongruities from the RMP. The oft-mentioned terms “resource protection,” “research,” “monitoring,” and “educate” were not often heard in my interviews with the park managers. For example, the ten sample parks collect an average of two data types per park (some of which are water quality readings [mandated by local health organizations] and visitation numbers). This is a far departure from the RMPs, which had a collective 69 instances of terms regarding data collection. About half of the respondents in the interviews said they had interest in doing some sort of research but had a barrier, such as knowledge of how to proceed, funding, or time. The other half expressed no desire to collect such data. This type of management structure is indicative of a movement towards a privatization model for public lands, rather than a publicly managed model traditionally seen in public lands (More, 2005).

(2) The RMP reflected an awareness and sense of urgency around planning for the increasing visitation happening at each park. Statements regarding the word “development” were used 31 times and described building additional infrastructure to accommodate visitors. The writers of the RMP seemed to have an understanding that visitation would continue to grow.

And it did grow. Visitation increased at the state parks collectively by 52% between the years 2013-2018 (Park Visitation Data, 2019). Park managers understand there is massive growth in visitation. The number one answer to the question, “What is the biggest impact on natural resources in your park?” was “increased visitation.”

However, a follow-up question asking how much visitation had increased at their park in the last 10 years, resulted in answers such as: “In the last 10 years, 3,000%;” “I’d say around 50%, maybe more like 100%;” “Nearly double;” and “Up 5% from last year.”

Several park directors admitted to being uncertain that visitation numbers are being accurately counted. For a group of park managers whose main stated concern is increased visitation and the wear and tear that comes with that, they did not have a clear idea about how much visitation had increased or how that visitation was calculated.

(3) Each of the 10 sample parks’ RMP were written before the 2012 management style shift. At that time, direction and assistance regarding writing and updating RMP was directed by the Parks and Recreation administration and a team of writers in that division. Today, with one exception, park managers have no plans to update their RMP to reflect the shift in focus and priorities. Additionally, none of the park managers had any knowledge of when the RMP would be rewritten or what the future plans are for RMP.

Since 2012, parks have transitioned to writing and utilizing Business Plans and Strategic Plans to guide their actions. Thus, park managers often have a handful of guiding documents to reference in managing their park, including a Resource Management Plan, Business Plan, Strategic Plan, and Wildlife Plan. Several park managers expressed a desire to streamline all of these guiding documents into one guiding document that identified priorities and actions regarding the business, strategy, and ecology within their parks.

In my estimation, park managers, in most cases, have fulfilled the stated objectives in their RMP. Of course, not all goals and objectives have been fulfilled, as would be expected with a working document and ever-changing conditions within the

parks. And this is where RMP are becoming obsolete for many parks. Competing priorities, such as meetings, generating revenue, and facility management take up much of these managers' time. In other words, the 3R's of public lands (resources, recreationists, and revenues) are pulling state park managers in many directions (Morgan, 1996) As one park manager said, "With a staff size this small…natural resource is of the lowest concern." Another commented:

> We do more crisis management then we do good management because we are very short on staff. Last night, I had a night shift cleaning bathrooms because we are short-staffed. Things that should be getting done, aren't.

The premise with which I began this study was that RMP were not a strong source of guidance when park staff are making decisions about natural resources. It was my hypothesis that factors such as the age and relevance of the RMP and demands like increasing visitation play a stronger role in guiding the thoughts and actions of park managers and park staff as they care for and manage natural resources.

This premise has proven accurate. Today, RMPs seem to be little more than a token gesture in the management of natural resources. There are no requirements from the Division of Parks and Recreation regarding the care, research, or management of natural resources. All of these decisions are left to the discretion of individual park managers. Park managers, while generally agreeing that RMPs are a good thing, have completed the goals listed in them and have changed the working policies followed for day-to-day management. This is likely a combination of changing management priorities, the shift to a business model, and outdated RMPs.

This wide discrepancy is not necessarily a bad thing. As one park manager said, "Resource Management Plans are living documents." They are meant to change as circumstances in the parks change. The Utah Division of Parks and Recreation Strategic Plan (written in 2017) lists 11 goals it intends to achieve. Three of these goals pertain to finances within the parks, three goals pertain to recreational opportunities within the parks, and there are no goals pertaining to natural resources within the parks. If this is a true reflection of the priorities and direction of Utah State Parks, I recommend that each park's RMP be updated regularly to reflect the current management focus and policies regarding natural resources. That would result in more realistic care and management of natural resources.

As stated previously, many parks are relying mainly on Business Plans and Strategic Plans to guide actions within their parks. I recommend that further research be performed on these additional plans to ascertain whether they are the primary documents being referenced by park managers in regards to the biophysical attributes of their parks. If that is the case, I recommend that these documents include written goals and priorities for natural resources. As with RMPs, Business or Strategic Plans should also be updated regularly to evaluate success and realign actions with goals (Gebhardt & Eagles, 2014). With 43 state parks in Utah and more than 5,000 state parks in the U.S., research of guiding documents on both a state and a national level could greatly benefit the natural, cultural, and recreational resources within the parks (Landrum, 2004).

I believe there is a strong chance that natural resources may be suffering in the parks. Then again, they may be thriving, but it is impossible to tell without park managers conducting accurate and scientific data collection in their parks. I would recommend that

basic thresholds regarding data collection be mandated by the Division of Parks and Recreation. Many park managers may have a limited knowledge base of how to properly collect and evaluate such data. Others may find the cost or time commitment to be too prohibitive. I recommend that the Division of Parks and Recreation consider hiring a single expert or a small team of experts for park managers to utilize for training and reference in their data collection.

Lastly, I believe it would benefit park managers to receive more regular training from the Division of Parks and Recreation about the mission of state parks and the future of RMPs.

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APPENDIX

Resource Management Plans

This study is seeking to understand the priorities and planning policies detailed in each state park's resource management plan (RMP) regarding natural resources and to compare whether they reflect the current priorities and policies held by management and staff at the park today.

- How long have you been director at this park?
- Is the RMP listed on the DWR website written in (year specific to each park) still the current RMP referred to today?
- Do you have plans to update or rewrite the RMP? If so, when will that happen?

Priorities

- Have stated or unstated priorities changed regarding natural resources since the RMP was written? If so, how?
- How often are RMP policies and goals referred to and communicated to staff?

Time and Staff

- How is the park director's time divided up? What percentage of the park director's time is spent on issues dealing with natural resources?
- How is the park staff's time divided up? What percentage of your staff's time is spent on issues dealing with natural resources?
- How large is staff surrounding care and management of NR? i.e. biologists, botanists, hydrology experts, wildlife management, etc.

- Concerning NR, how much time is spent in restoration projects compared to mitigation compared to continued management?

Natural Resources within Park

- What are the major visitor impacts on natural resources?
- What programs or projects are underway to address natural resources?
- How much of a priority is maintaining or improving natural resources compared with other tasks? Are there competing priorities?
- What's the biggest impact on natural resources in your park?
- Has the change in management style seen any impacts due to that change or changes in the way the budget is run?
- What is the biggest challenge currently facing your park?
- What types of scientific data do you currently have about your park's natural resources?
- What data sets do you gather on a regular basis?
- Are there data sets that you need to have before making changes in your park but don't have yet?
    - If so, what are the barriers to collecting that data?
- What percentage of actions regarding NR come from park level, and what percentage comes from DWR?

Visitation

- How much has visitation increased at your park in the last 10 years?
    - Since the RMP was written?

Park-Specific Questions

Antelope Island

"Estimate the amount of water needed for current and future demands (wildlife, range management and improvement, facilities and visitor use) of the park." Was this goal accomplished? How did you go about estimating the amount of water needed?

"Identify levels of acceptable change or measures to determine when park management must act to reduce impacts to resources or visitor experiences, or to solve public safety or other problems." What scientific methods were employed for identifying levels of acceptable change?

"Upon substantial completion of the recommendations in the current access management plan, form a new planning team to evaluate implementation successes and impacts, and to develop a new plan (pg. 35)." Was this team created, and has development of a new plan begun or finished?

Bear Lake

"Monitor, preserve, and protect water quality of the lake. The Division and Park should support efforts to monitor, preserve, and protect the water quality of the lake." What actions have been taken in this regard? What scientific methods have been employed? Has the Division of Wildlife Resources showed support in this effort?

"Landscape design plans for all park areas. These plans will outline how vegetation will be restored and maintained, and will suggest species to be used." Was this goal accomplished? If so, were the plans carried out to restore and maintain vegetation?

Dead Horse Point

"Consider surcharge addition to fees or other creative means to purchase lands, development rights, and/or conservation easements from SITLA." Was the surcharge implemented? And if so, have funds been used to purchase lands, development rights, and/or conservation easements from SITLA?

"Work with San Juan and Grand Counties to put in place light ordinances for viewshed." What type of scientific data or methodology is used to determine an unacceptable amount of light in the viewshed?

"Conduct range trend inventories to identify impacts, noxious weeds, etc." Was this inventory conducted? If so, what were the resulting actions?

Escalante

"Consider an allocation of funds for lake improvement in exchange/consideration of recreation benefits." Was this action taken? Have any additional water rights been purchased to increase recreation ability?

"Use interpretation to protect resources by educating park visitors about the uniqueness and importance of park resources." Has education helped to decrease degradation or theft of natural resources? Have other kinds of actions been taken instead? Is a main concern of the park still keeping visitors from taking pieces of petrified wood?

"Develop some programs to target specific user groups, such as local school children." Is working with local school children still a priority?

Goblin Valley

"Contract with UGS/universities to set up erosion monitoring stations and procedures." Was this goal completed? Is monitoring still performed?

"Establish designated trails and handicapped accessibility."

"The development of an additional water well may be necessary to meet growing demand resulting from improved and more convenient access to the park. An additional 4.75-acre foot water right may also be needed to meet increasing day use consumption." How have the additional visitors since the RMP was written affected the water needs at the park? Is this still a concern?

Gunlock

There was only one policy or action listed in the RMP in regards to natural resources.

Are there currently any stated or written goals or action plans regarding natural resources for Gunlock? i.e. rock, vegetation, water quality, animals, etc.

"The beautiful bedrock forming the dam's spillway is Navajo sandstone (Heintze, Anderson and Embree)." Are there policies that have been created regarding the spillway runoff that happens in the spring (considering that people now play and swim in these pools)?

Kodachrome

"Work with landowners (BLM, GSENM, outside of park boundaries) to protect watershed and associated water supply." Water supply was an issue at the time of the writing of the RMP, and the water supply had dried up in 1999. Is water supply still a relevant issue for the park?

"Introduce measures to minimize erosion from flooding and runoff." "Revegetate disturbed areas with native species; plant native grasses to hold the soil." Erosion and flooding were problems at the time of writing. Were these actions taken?

Sand Hollow

"Support and enhance DWR's efforts in invasive mussel prevention and control." Mussel control was a high priority. Is this still a high priority? Are actions regarding mussel control directed by DWR or the park?

"Add an interpretive-education naturalist position to the park as an important tool for compliance of and education about rules, proper use and protection of resources, and enhancement of visitor experiences." Was an education position added to park staff? Has that action helped improve visitor behavior regarding natural resources?

Utah Lake

"Evaluate and improve pest control methods. Coordinate with appropriate entities to conduct evaluation and determine improved pest control methods (e.g. Division of Wildlife Resources, etc.)." Were these partnerships created? What methods of evaluation were conducted to study pests? "Consider the use of bat houses to naturally increase bat populations and decrease insect populations." Have pest numbers been reduced, and if not, is this still a high priority?

"Nevertheless, water quality experts agree that steps should be taken to improve lake water quality. They focus on reducing nutrient levels – phosphorous in particular – as the key to improving lake water quality." Have actions regarding water quality been successful? Is this still a priority area?

Wasatch Mountain

"Partner with FF&SL and the U.S.D.A, Resource Conservation and Development Service (RC&D)/Natural Resource Conservation Service (NRCS) for funding and planning for wildfire breaks and vegetation management plans." Was funding obtained

through these partnerships? Were the fire breaks created? Were vegetation management plans created and implemented?

"To better inform and educate the public about areas open to motorized use, coordinate with federal and county agencies and update maps, brochures, and other public information." Was this action taken? Did it decrease the number of unauthorized trails?