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Understanding the Perceived Effectiveness of Applying the Visitor Experience and Resource Protection (VERP) Framework for Recreation Planning: A Multi-Case Study in U.S. National Parks

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Abstract

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Keywords

Outdoor Recreation, Planning, Park Management, Qualitative Research, Case Study

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The Visitor Experience and Resource Protection (VERP) framework is a planning framework developed by the U.S. National Park Service (NPS) to help guide visitor use planning and decision-making in U.S. national parks. The research reported here highlights the perceptions of park practitioners about major successes and challenges associated with visitor management and recreation planning using the VERP framework. We used a qualitative multiple case study design to explore three (3) national parks that have applied the framework. We conducted 16 semi-structured interviews with park managers, park planners, and recreation scientists, and used thematic coding to categorize the data to capture relevant themes. Our results show that lack of training and leadership in the social dimensions of resource management has limited the successful application of VERP. On the other hand, closely following framework procedures and maintaining quality partnerships with entities both within the agency and outside to facilitate planning efforts, has helped visitor management approaches achieve desired outcomes. This research contributes to the ongoing work of visitor use specialists by using lessons learned and applying them to future planning. It provides tangible outcomes to park managers by providing examples of VERP application to base decisions. Keywords: Outdoor Recreation, Planning, Park Management, Qualitative Research, Case Study

Introduction

The purpose of this study was to understand how visitor management frameworks are put into use in public lands in the United States. Over the past 35 years visitor use management has become a high priority for public land managers due to the increasing complexity of recreation and tourism activities in protected areas (Manning & Anderson, 2012; McCool, Clark, & Stankey, 2007). Various frameworks have been developed to inform recreation management; each addressing the decision-making process in a way that fits with the objectives of a given U.S. land management agency (McCool et al., 2007). The present study investigates one framework called Visitor Experience and Resource Protection (VERP) as a means to better understand management approaches in the U.S. National Park Service specifically (Hof & Lime, 2007; National Park Service [NPS], 1997). Because “relatively few, field-tested frameworks exist for this array of issues...” (McCool et al., 2007, p. 30), this study documented the perceptions of recreation management professionals to achieve a rich understanding of perceived effectiveness of VERP. This study addressed the question of whether frameworks

such as VERP have been useful to managers for making decisions and highlighted those areas that should be addressed as future recreation management frameworks are developed, or modifications are made to existing frameworks.

The National Park Service (NPS) Purpose, Mission and Mandate

The sustainable management of the worlds protected places is essential for the protection of irreplaceable natural assets that have been set aside for both intrinsic and instrumental values. Parks and protected areas are vital to global health and well-being in countless ways including: (1) serving as open spaces in a time of intense land development, (2) protecting natural and cultural resources, (3) providing recreation opportunities, (4) and providing economic benefits from increased jobs and tourism (Lockwood, Worboys, & Kathari, 2006; Manning & Anderson, 2012).

The National Park Service (NPS) is a U.S. public land management agency that has been tasked with protecting natural and cultural resources while providing access and quality recreation opportunities for this and future generations (NPS, 2000). It is now commonly understood that in places where recreation is allowed, degradation to the resource is inevitable (Hammit, Cole, & Monz, 2015). This dual mandate is challenging for park managers as they search for ways to encourage outdoor recreation while also protecting the resources from unacceptable amounts of change. In recent years, the mandate has become increasingly complex, with record breaking visitation to national parks across the country in 2016, the third year in a row of record breaking visitation (NPS, 2018). The NPS hosted 292.8 million recreation visits in 2014, and 331 million recreation visits in 2016 (NPS, 2018). With added pressure for the nation's parks being "loved to death," it is essential that park managers have the proper tools and knowledge to maintain a quality visitor experience while protecting natural and cultural resources from unacceptable degradation.

Carrying Capacity and "Management-by-Objectives" Frameworks

The growing complexity and dynamic nature of recreation and tourism have accelerated the need to answer one not so simple question; "How much change can occur before it becomes too much?" or, "What is the level of unacceptable change?" (Stankey, Cole, Lucas, Petersen, & Frissell, 1985). To help answer this question, federal legislation, such as the National Parks and Recreation Act of 1978 (McCool et al., 2007; Manning & Anderson, 2012), mandated that each national park establish a systematic approach to identify a recreation carrying capacity based on biophysical, social and managerial components. Biophysical capacity refers to the ultimate limits to growth as constrained by environmental factors (Hayden, 1975). Social capacity refers to the notion that increasing recreation would cause detrimental impacts to the visitor experience (Manning & Lime, 1996). Managerial capacity refers to the ultimate limits to growth as constrained by managerial capabilities and actions (Wagar, 1964). Taken together, these three components build a comprehensive model of recreation carrying capacity and has been upheld in contemporary analysis of recreation carrying capacity (Eagles & McCool, 2002; Manning, 2011; Shelby & Vaske, 1991).

Given the complexity of recreation carrying capacity, and the legal mandates just described, outdoor recreation frameworks, also known as "management-by-objectives" frameworks, have been developed to guide park managers in identifying, planning for, and managing quality and sustainable recreation experiences (Nilsen & Taylor, 1997; McCool et al., 2007). Several such frameworks were developed over time, either for a specific U.S. land management agency or in response to limitations of frameworks prior (McCool et al., 2007). Management-by-objectives frameworks include, but are not limited to: Limits of Acceptable

Change (LAC), Visitor Impact Management (VIM), Visitor Experience and Resource Protection (VERP), Carrying Capacity Assessment Process (C-CAP), Visitor Activity Management Process (VAMP) and most recently, Visitor Use Management (VUM; Graefe, Kuss, & Vaske, 1990; Hof & Lime, 1997; Interagency Visitor Use Management Council, 2018; McCool & Cole, 1997; Shelby & Heberlein, 1986). Despite their minimal differences (Graefe et al., 1990), each framework consists of steps to help an area define management objectives, indicators and associated thresholds, monitoring protocols and adaptive management strategies where appropriate (Manning, 2011).

A “framework” in this context refers to “a process that involves a sequence of steps that leads managers and planners to explicate the particular issue...this does not necessarily lead to the formulation of ‘the’ answer to an issue but provides the conceptual basis through which the issue may be successfully resolved” (McCool et al., 2007, p. 25). Management objectives are broad, narrative statements that define the type of recreation conditions to be provided and maintained; including the condition of natural and cultural resources, the type of recreation experience, and the type and intensity of management action. Indicators are specific, measurable and manageable variables that reflect the management objectives, while thresholds define the minimum acceptable condition of indicator variables (Manning & Anderson, 2012).

Visitor Experience and Resource Protection (VERP)

VERP was developed in the early 1990’s as a modification to the Forest Service’s Limits of Acceptable Change (LAC) framework. The LAC framework was originally developed as a planning tool for understanding when impacts become unacceptable, and to guide in identifying strategies for mitigating unacceptable impacts (Cole & Stankey, 1997). LAC is a 9-step procedure that begins with identifying area issues of concern. VERP, however, modified LAC by adding an initial step in the planning process; to identify park significance, fundamental resources and values, and desired future conditions (McCool et al., 2007). Thus, LAC is more reactive, in that it is implemented when there is a problem to be identified, while VERP is proactive, in that it defines desired conditions rather than reacting to problem-areas. Beyond defining desired conditions, the application of VERP consists of four major phases involving eight specific elements (McCool et al., 2007). The four phases include; (1) build the Foundation, (2) define existing resource and visitor use conditions, (3) prescribe a range of visitor experience and resource conditions (including zoning and identifying indicators and thresholds), and (4) monitor and manage.

VERP was first tested and applied in Arches National Park (Manning, Leung, & Budruk, 2005) as a justifiable and systematic decision-making approach to inform the NPS General Management Plan (GMP) process. Despite the reported success of initial application at Arches (Manning & Lime, 1996; Manning, Lime, Hof, & Freimund, 1995), many parks that utilized VERP since then have modified the framework slightly. Thus, the degree to which each park in this study followed the described framework procedures precisely, varies. For instance, Glacier National Park applied VERP principles to update their GMP, while Acadia National Park used VERP to inform decisions in several smaller, more site-specific areas. Such adaptations highlight the context-based and complex nature of planning and management on public lands. The evolution of visitor-use management procedures over time has inspired field managers and researchers alike to further assess recreation-planning tools in the U.S. McCool et al. (2007) provide a comprehensive overview of several recreation frameworks including Recreation Opportunity Spectrum (ROS) and Limits of Acceptable Change (LAC). However, the overview in McCool’s analysis of Visitor Experience and Resource Protection (VERP) was limited “primarily because of the limited amount of managerial experience at this point” (p. 31). Therefore, “there has been no formal assessment of experience with VERP from which

the valuable lessons that planners have learned could be archived” (McCool et al., 2007, p. 100). Thus, this study focused on the VERP framework as a means to (1) add to the existing knowledge of recreation frameworks in the United States, (2) aid decision making by adding knowledge to the management “tool-box,” and (3) inform future recreation framework development. We focus on the VERP framework in particular for two main reasons. First, there has been no research to the authors’ knowledge that specifically examines the effectiveness of VERP, while there has been such work for similar frameworks (LAC in particular). Second is to focus on the unique case of the NPS as a land management agency. Unlike the U.S. Forest Service (USFS), the Fish and Wildlife Service (FWS), the Bureau of Land Management (BLM), the NPS is specifically tasked with providing recreation *and* protecting natural and cultural heritage. The dual mandate alone gives credence to studying management strategies specific to the NPS.

Describing the Qualitative Approach

Along with a lack of formal assessments of the VERP framework (McCool et al., 2007), there have been only few quantitative (Bacon, Roche, Elliot, & Nicholas, 2006; Hof & Lime, 1997), and no qualitative assessments of any of the aforementioned “management-by-objectives” frameworks (Moore, Smith, & Newsome, 2003). We recognized a gap in the recreation research, where qualitative studies focused on decision-makers themselves have been neglected. Qualitative researchers “study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them” (Creswell, 1998, p. 15). Adopting the qualitative research tradition for this study was essential, as it allowed us to gain an in-depth understanding of individual experiences in site-specific planning scenarios, while remaining flexible and adaptable to capture details of unexpected or new ideas.

Thus, we chose a qualitative approach to gain an in-depth understanding of the perceptions of those who have worked in some capacity with the VERP framework, and how these perceptions may impact the outcomes of the process (i.e., the meanings people bring to a phenomena).

This study aimed to achieve an in-depth understanding of the underlying processes by focusing on the context of the everyday activities. These everyday activities are associated with recreation management, focusing on decision-making processes (Rosaline, 2008), rather than the resulting content. Such an approach requires a more insightful, descriptive and flexible process (Ely et al., 1991), where iterative analysis informs data generation. The research team used qualitative methods to comprehensively address any emergent themes and concepts throughout the study and gain rich understanding of the processes associated with planning using the VERP framework.

Introducing the Researcher

As expressed by Tobin (1993), when doing qualitative inquiry we do more than apply methods or follow a set of established rules. We acknowledge who we are as researchers and learners, recognizing our beliefs, values, assumptions, etc. Let us introduce you to who we are and our beliefs about the topic.

Jessica Fefer is currently a doctoral student, and was a Master’s student at the University of Maine at the time of writing. She worked for three years at Acadia National Park in Maine and was intrigued by the efforts and protocols that are fundamental for managing and planning in national parks. During her time working at Acadia, she saw first-hand the planning processes, data collection procedures, meetings, political will, funding, time and commitment

it took to successfully manage areas that she grew up loving. The focus on the VERP framework in particular was driven by her experience and love for the national park system. Her goal for investigating park planners and experts in the field were to learn from the experiences of others to see how she could further contribute to planning effectiveness.

Sandra De Urioste-Stone is an Assistant Professor in the School of Forest Resources at the University of Maine studying nature-based tourism. She worked for a non-profit organization in Guatemala developing ecotourism programs, including applying visitor management frameworks such as VERP. She is interested in improving existing frameworks to manage visitors and their impacts in natural settings, particularly in national parks, by using sound science and stakeholder collaboration.

John Daigle is a Professor of Forest Recreation Management at the University of Maine. His research has explored visitor experience, alternative transportation, recreation benefits among other topics relevant to visitor management in national parks and national forests. He previously worked for the US National Park Service as a park ranger, and US Forest Service as research forester.

Linda Silka is Senior in the Senator George J. Mitchell Center for Sustainability Solutions. Her research has focused on developing solutions to pressing natural resource problems and working closely with partners. She is passionate about the US National Parks and all the benefits they offer to humans and wildlife.

Methodology

For this study, we focused on understanding the range of perspectives on the effectiveness of the VERP framework via adopting the social constructivist paradigm, as the truth is a relative construction of one's individual perceptions (Denzin, 1978; Creswell, 2013; Yin, 2014). It "recognizes the importance of the subjective human creation of meaning but doesn't reject outright some notion of objectivity" (Crabtree & Miller, 1999, p. 10). Because people perceive meanings differently, we relied heavily on the individual participants' views to inform our interpretation (Creswell, 2013).

We selected an instrumental multi-case study design, as it allowed us to learn about planning experiences from a broad range of perspectives (Creswell, 2013). In instrumental multi-case study research, several cases are identified that will facilitate an understanding of a specific phenomenon (Yin, 2014). We used multiple U.S. national parks as instruments to inform our understanding of applying VERP.

To focus the study, we chose to highlight those components of VERP that have been identified as most likely to hinder or facilitate successful planning at each park. This research is most impactful when relevant to park practitioners themselves, hence our decision to remain focused on components of VERP that make the planning procedure successful, or not.

Research Questions

This study was guided by several fundamental questions which helped to focus our study to best understand expert perceptions of applying VERP in U.S. national parks.

- 1) What are the perceptions of national park staff and academic experts of the effectiveness and sustainability of applying the Visitor Experience and Resource Protection (VERP) framework in national parks?
- 2) How, if at all, did the application of VERP in U.S. national parks change over time?
- 3) How, if at all, did park staff and visitor use expert perceptions of using VERP to guide planning processes change over time in U.S. national parks?

- 4) What are the similarities, differences and uniqueness in perceptions of applying VERP across U.S. parks?

External Approval

Prior to data generation, our research protocol received approval from the University of Maine Institutional Review Board (IRB) for the Protection of Human Subjects. Each participant was made aware of the procedures and understood that their participation was voluntary. They could decline to answer any questions or retract responses at any time throughout the study.

Case Selection

Criterion sampling (Patton, 2002) was used to identify each national park and individual participants; and to provide a clear rationale for the chosen parks. The parks needed to (1) have applied, or currently be applying the VERP framework, (2) have identifiable park managers, park planners and/or social scientists (at least two of the three) that were willing and able to participate, and (3) have available archival evidence in relation to the planning process. Along with these criteria, we intentionally chose parks that covered different regions of the United States as a means of gaining a diversity of settings. The chosen parks were (1) Acadia National Park, (2) Glacier National Park, and (3) Denali National Park. Case descriptions can be found in the results section.

Criterion sampling was also used to identify the staff participants eligible in each park (Merriam, 2009). The criteria included (1) participants must have knowledge of the parks VERP planning process, (2) participants must have worked directly on managing, planning or data collection in relation to VERP, (3) participants must be employed by the National Park Service (NPS) or contracting agency that conducted research to inform the VERP planning process, and (4) the participant must be willing and able to participate. Using chain referral (Emmel, 2013; Patton, 2002), we asked our initial contacts, who had been identified based on a literature review, to name other parks and staff who might fit the given criteria.

In accordance with instrumental multi-case study methods, we sought various perspectives to describe how experts define the VERP phenomenon, and then to identify and analyze emergent themes from each case (Creswell, 2013; Yin, 2014). Table 1 summarizes our study design, and data collection methods for each park.

Table 1. Data Generation Methods and Sources by Case

	Acadia NP	Glacier NP	Denali NP
Archival Evidence	-Finalized plans -News articles -Research articles	-Finalized plans -News articles	-Finalized plans -Research articles
Observation & Site Visits	-Traveled to site -Worked at site	-Traveled to site	-None
Interview w/ Planner	Yes	Yes	Yes
Interview w/ Manager	Yes	Yes	Yes
Interview w/ Researcher	Yes	Yes	Yes

Data Collection and Database Creation

As suggested by Yin (2014) and Creswell (2013), we used multiple data collection methods to ensure an in-depth understanding of each case. These methods included (1) semi-structured interviews, (2) archival evidence review, (3) observation and site visits, and (4)

researcher-generated field-notes and reflective journals. All documents were scanned into NVivo10 database to facilitate analysis. Following is a description of each.

Semi-structured interviews. Semi-structured interviews (Brinkmann & Kvale, 2015) were used to understand how each individual perceived the application of VERP. This method was used to stay focused on specific themes, while allowing for flexibility for probing or addressing new information or adjusting questions based on participant knowledge (Brinkmann & Kvale, 2015). The initial interview guide was pilot tested before entering the field (Creswell, 2013). Pilot testing was accomplished by asking co-authors on this paper, and co-workers who were not involved in the study to participate in the interview and take note of question clarity. The first author of this paper asked six people to participate in the interview before beginning data collection. Only question was removed after being seen as unnecessary for the research questions, and another question was re-written for clarity.

In total, we completed 11 individual interviews; and one group interview with five individuals who had worked together on many VERP-related projects. Each interview lasted 60-90 minutes and occurred either in person or over the phone. Interviews were transcribed verbatim to capture the context and uniqueness associated with each answer (Brinkmann & Kvale, 2015).

Archival evidence. We reviewed archival documents including (1) zoning maps, (2) past visitor use planning documents, (3) social data used to inform the planning process, (4) relevant photos, (5) completed visitor use plans, (6) General Management Plans, (7) court rulings, and (8) interpretive documents for the public. These documents enhanced our understanding of the contextual variables that prompted the decision for a park to apply VERP, the internal processes associated with planning, and the final planning outcomes of each case.

Researcher observations. We used *participant as observer* methods (Creswell, 2013) for two of the three cases in this study. Acting as a participant observer required that the researchers actively participate in activities at the site to “gain insider views and subjective data” (Creswell, 2013, p. 167). Field visits were conducted in Acadia National Park and Glacier National Park, where we were able to observe interactions among and between park staff and park visitors and experience the park as a visitor. Due to limited time and funds, we were unable to visit Denali, thus all Denali interviews were conducted by phone.

Reflective journal and memos. Reflective journals were used in this study to (1) summarize interviews and observations, (2) note new and significant information, (3) document emergent themes, and (4) aid in formative data analysis. Our reflective journals were descriptive summaries that helped to organize memories and thoughts (Miles, Huberman, & Saldaña, 2014). Memoing was used as an efficient way to capture emerging connections, with memos becoming more elaborate and in-depth over time. Memos took us beyond descriptive summaries of data and moved us towards synthetic analysis. During analysis, we focused on illuminating connections within and between cases (Miles et al., 2014).

Data Analysis

We studied the application of the VERP framework in a range of national park settings, focusing on facilitating and limiting factors of VERP planning in each park setting.

Coding. We used coding to condense and categorize data in this study. We then identified themes using all materials (Creswell, 2013; Miles et al., 2014). As suggested by Saldaña (2013), we used coding cycles. First cycle coding was open and inductive (Patton, 2002), using *descriptive coding* to assign labels that described passages in the data (Miles et al. 2014). As a second step, we aggregated all codes into 56 categories. We then used deductive *pattern coding*, which consisted of merging categories into broader themes both within and between cases (Miles et al., 2014). We used each component of VERP that was significant to

respondents as the highest-level theme (Table 2), thus VERP components and themes are one in the same. We then aggregated the 56 categories among the components of VERP to understand the value of each to the planning process and outcomes.

Data display and drawing conclusions. We drew preliminary conclusions by displaying the data to inform analysis and provide visual clarity to the condensed information (Bazeley & Jackson, 2013). We developed separate matrices for each case, permitting us to clearly see themes and draw connections between and within cases (Miles et al., 2014). We displayed data in this way throughout the study to ensure outcomes remained close to our research questions (Miles et al., 2014).

Trustworthiness and triangulation. Establishing trustworthiness is a means of ensuring that a study is: (1) credible, (2) transferable, (3) dependable, and (4) confirmable (Lincoln & Guba, 1985). We used several strategies in this study to address each criterion. Descriptions of each case were provided to address the possibility of *transferability* across cases, providing the context in which conclusions were drawn. *Credibility* was established through data generation and analysis occurring at the same time throughout the study to help researchers stay close to the data (Creswell, 2013). Peer debriefing (Lincoln & Guba, 1985) by faculty advisors and committee members helped minimize the threat of researcher bias, ensuring *dependability* (Schwandt, 2001). *Confirmability* was achieved by triangulating methods and sources of data (Creswell, 2013). We achieved triangulation across cases by examining three different contexts where VERP has been applied. We also achieved triangulation within each park by examining several different data sources; archival evidence, semi-structured interviews, and site visits where possible. Additionally, semi-structured interviews were conducted with individuals who had different roles in the process; planners, managers and researchers. These methods made it possible to learn from individuals from a diversity of professional backgrounds within and across parks.

Case Details

Table 2 compares key areas of interest across each case in this study. The variety observed in size and visitation for each park is included to highlight the different characteristics of each park, adding to our understanding of VERP application in a variety of contexts. For instance, Acadia National Park is the smallest of the cases, yet receives the highest number of visitors, and provides mostly front country, more highly developed recreation opportunities. On the other hand, Denali National Park manages the park for its wilderness characteristics and to provide solitude for visitors. Table 1 provides descriptive details of each park to provide context for understanding the variety of both physical setting and management direction.

Table 2. Comparison of Multiple Cases

National Park	U.S. Region	Size (total acreage)	Total recreation visits in 2016	VERP Planning
<i>Acadia National Park</i>	Northeast	47,748	3.3 million	-Visitor Use Management Plan for certain recreation activities. -General Management Plan Amendment.
<i>Glacier National Park</i>	Northwest	1,012,837	2.9 million	-Corridor Management Plan (transportation). -General Management Plan Amendment.
<i>Denali National Park</i>	Pacific	6,075,029	587 thousand	-Backcountry Management Plan

Current Management Trends

Outdoor recreation and park management is a dynamic field that must continuously adapt to emerging trends and new discoveries. While many administrative and operational changes have occurred within the NPS, there is change that is more relevant to this paper. The Interagency Visitor Use Management Council (IVUMC), a group of representatives from six different federal land management agencies, has developed a new “management-by-objectives” framework, called Visitor Use Management (VUM). This framework merges concepts from frameworks preceding it, such as LAC and VERP, to create an interagency VUM framework that can be implemented across agencies. The benefits of a shared framework are many, including a shared language across agencies, which makes collaboration and lessons learned more accurate and applicable across the board. Given that this new framework has just been developed, that publications and guidelines are nearly ready to be made public, and that the VUM is based off of shared ideas with VERP, an analysis of VERP effectiveness is timely and might be very useful in the development of a new, more inclusive, management-by-objectives framework.

Results

Participant perceptions of applying VERP in each case are useful to: (1) identify components that define the successful application of the VERP framework; (2) highlight visitor use-planning practices that have been viewed positively by at least one participant in each case; (3) highlight practices viewed as negatively impacting the process by at least one participant in each case, (4) identify VERP components where perceptions regarding usefulness across cases varied, and (5) highlight study implications, lessons learned, and suggestions for future research.

Indicators of Success

From our 56 original codes, we identified themes that indicated the successful application of the VERP framework. Twelve themes emerged as indicators of success from the coded descriptions of each participant. Themes most often fall under three broad categories; (1) staff capabilities, (2) public engagement, and (3) decision-making support.

Staff capabilities. In this context, “staff capabilities” is referring to the amount of staff dedicated to implementing a monitoring the plan outcome, staff knowledge, staff time and resources dedicated to the project, staff engagement and staff enthusiasm. Several participants define staff capacity as knowledge and understanding of the value of social science data; where staffs are most often not equipped with the necessary training to effectively inform management decisions. Other participants associated staff capacity with resource availability—both funding and personnel—to support the long-term, resource intensive process of park planning. One participant believed that planning success was reliant on the personalities that make up the planning team, as conflicting interests and inefficient team management detracted from productivity in their case.

Plans like these simply aren't successful if the people working on them aren't knowledgeable and logical. The decisions that need to be made here, like setting a capacity number, require that those working on it have knowledge about the area, not just about the planning process. It seems like we're talking a lot about the planning process here, but the process means nothing if the staff don't know

anything about the place their making decisions about. It's really a matter of getting your feet on the ground. (Case 2, Planner, September 2014)

Regardless of the various definitions, data showed that staff capabilities and motivations are essential to the successful application of a long-term visitor use planning initiative, such as those guided by the VERP framework.

Public engagement. Public engagement in large-scale decisions on public land is not only best practice, but also a federally mandated requirement in most cases. The public is engaged differently based on the federal agency and/or the scope of the project. Public engagement can occur through public scoping, online forums, on-site public meetings and other methods. All participants understood the value of public opinion, with just under half of participants suggesting that public support of the plan objectives is indicative of successful planning.

I mean...I'm sure I'm not the first to admit that public engagement can go either way. It's a necessary part of our democratic process and can sometimes garner support for plans that might be publically contentious, but I've also seen it go the other way...what I mean is that I've seen processes where public engagement is just a step to accomplish, but nobody listens to what's being said. Again, it isn't that way every time, but it certainly happens, and I think that needs improvement. When public engagement goes well and is truly an exchange between the agency and the public, we're successful every time. (Case 1, Planner, October 2014)

Participants found public engagement necessary and valuable, but there was concern about implementation of the engagement process itself, in some cases. Participants sometimes viewed public engagement as a requirement to avoid litigation, yet one respondent stated that litigation and public backlash has been effective in ensuring the plan is of high priority.

Decision-making support. The degree to which the framework actually guides the decision-making process is viewed as critical for evaluating the success of VERP. All participants recognized that the VERP framework is meant to guide decision-making using a scientific, defensible and transparent approach. However, there seemed to be initial confusion among some participants about the use of VERP framework at all. Some were unclear in the early parts of the plan that they were using the VERP framework as a guideline at all, but all were made aware of the intentional guidance at some point in their planning process.

We definitely would not have reached the same conclusions without using this VERP process. I remember the meeting we had when we first started this plan years ago...we were clueless! We didn't even know where to start until one person started spewing off steps from some planning process. That's how I felt at the time, anyway. I had never heard of VERP so didn't know of these steps, but once we started to put them into practice, it really helped organize our thinking. I remember that first meeting being one of the most difficult...it was a learning curve for a lot of us. (Case 1, Manager, November 2014)

The way VERP is perceived as being used as a decision-making support tool is an important indicator for the success of VERP, however decision-making support is also an indicator of how well (or if) science was incorporated into the planning process. This component was mentioned in all three cases, however the degree to which science is used is a product of the scale of the project. All of the cases in this study represent large-scale, moderately to highly

contentious plans which each require many decision inputs, including scientific data. The application of science to the planning process will be further discussed later in this paper. Table 3 identifies the number of participants in each case that talked about specific indicators of success.

Table 3. Indicators of a Successful Application of VERP Reported by Respondents

Indicators of Success	Case 1 (n=3)	Case 2 (n=3)	Case 3 (n=3)	Outside Sources (n=7)	Total (n=16)
Based on high quality science	1	3	3	4	11
Plan gets implemented	3	3	2	2	10
Staff trained in social sciences	1	3	3	2	9
Follows framework procedures	2	2	1	3	8
Well-defined purpose & significance	1	2	2	3	8
Monitoring program	2	2	2	2	8
Effective public engagement	1	2	2	3	8
Clear definition of desired outcomes	1	3	2	1	7
Defensible capacity	2	1	2	0	5
Plan gets written	1	2	1	1	5
Strong decision-making support	0	2	1	2	5
Management priority	0	2	1	0	3

*Template modified from Stern, Blahna, Cerveny, and Mortimer (2009)

Table 3 represents responses about the successful application of VERP in general, not necessarily as it relates to their associated case. The number in parenthesis signifies the total number of participants from each case. The numbers associated with each indicator signifies the number of participants using the term to describe success.

Perceived Value of VERP Components by Case

Fourteen (14) themes emerged from 56 codes used in participant interviews to help researchers describe their perceptions of applying VERP in each case. Table 3.3 displays all 14 themes as they relate to perceived value in achieving desired outcomes. Perceptions of value differed both within and across cases often, highlighting the complexity associated with planning and management.

The components of VERP that are positively valued across cases include: (1) maintaining research partnerships with universities; (2) ensuring that there is a field-management level staff member committed and dedicated to visitor-use; and (3) centralization within the agency as planning support. Participants experienced (1) lack of staff training, (2) employee turnover, and (3) effectively incorporating science into decision-making as negatively impacting planning success in each case. Of these, participants most consistently agreed that high staff turnover rate within the NPS was a negatively valued component. We also highlight eight components that differed in terms of value both within and across cases.

Of the eight components where cases differed in opinion, all participants in Case 2 report positive experiences in terms of interdisciplinary team (IDT) productivity. Litigation pressures are discussed and/or understood the least by individual participants, closely followed by hiring contractors and framework flexibility.

In Table 4, a plus sign (+) is used to identify VERP themes that are positively valued. A minus sign (-) is used to highlight themes that are negatively valued. A dash (/) is used to indicate participants that did not know about or did not talk about the associated component. Participant opinion that did not associate with a specific case are not included in this section, as table 4 remains focused on components of VERP experienced in each specific case.

Table 4. Participant Perceptions of Value of VERP Components in Achieving Desired Outcomes

Perceptions	Themes	Case 1	Case 2	Case 3
Positively viewed across cases	University partnerships	+ + +	+ + +	+ + +
	Within agency centralization	+ / +	+ + +	+ - +
	Committed staff advocate	+ / +	+ + +	+ + +
Negatively viewed across cases	Internal staff training	+ - /	+ - -	- - -
	Staff turnover	/ - +	- - -	/ - -
	Effectively applying science to decisions	- - -	+ - -	+ - -
Values differ across cases	High level management support	+ / -	+ - -	+ + -
	Long-term commitment	+ - +	- - +	+ - +
	Interdisciplinary team productivity	+ / -	+ + +	+ - +
	Following framework procedures	+ / +	- + +	+ - -
	Public engagement	- - -	+ + -	/ - +
	Framework flexibility	- / /	+ + -	+ - /
	Hiring consultants	+ + /	+ / +	- / +
	Litigation pressure	- / /	/ - +	- / +

Practices Viewed as Positive to Achieve Planning Success

Of the 14 themes identified in Table 4, three are consistently viewed as positive to the planning process. In other words, each of the three parks had a positive experience with having committed staff, university supported research, and within agency centralization.

Committed staff advocate. Participants describe the importance of having a staff advocate who is highly knowledgeable, dedicated and committed to developing, implementing and monitoring the plan (whether it is a visitor use plan, transportation plan, etc.) using the VERP process. The important role of staff dedicating their time to visitor-use management and planning is highlighted in all but one interview, where the topic was not discussed. Each case reported the importance of a management level visitor-use advocate to make the extensive planning process a priority.

...there's just so much going on here. We have so many different things come up, like...you know... new regulations or standards to follow, changing seasons, new upper-level staff coming in, that sometimes priorities get completely shifted within a couple hours. If we didn't have Zachary [name changed for privacy], folks would forget about doing some of the most

fundamental tasks to visitor management. We probably wouldn't be counting visitors, or keeping track of how people respond to signs, if we didn't have someone literally in our faces advocating for those things. And even then it sometimes doesn't happen. (Case 2, Planner, September 2014)

Parks that have the capacity to support the work internally often harbor the more complex visitor use challenges, marking the need to allocate resources and staff time to successfully completing the planning process.

University supported research. In each park, the academic community facilitated research and recommendations to inform decision-making. Well-maintained research programs have remained essential to the NPS as a resource to conduct and facilitate relevant park research, such as gathering social and biophysical data needed to inform recreation management decisions.

The other thing that would be of concern is there are very few people, in fact I only know of a couple that even do this work...so what happens when they retire? We need universities to carry on the research. Luckily there's been an interest in [case 2] for a long time. (Case 2, Planner, September 2014)

Because each park in this study are largely popular, highly visited, and present very complex visitor management challenges, the respondents perceived that research was needed to help inform decision-making in a transparent and justifiable way. In an interview with an NPS planner who was not associated with these parks it became apparent that not *all* VERP planning processes require scientific study.

It is the scale and the scope of the visitor use issue, and complexity of the park unit itself that determines whether or not scientific data is needed. In some cases, visitor use or resource data may have been collected just a few years prior to a planning process, and sometimes that's enough. In other cases, the visitor use challenge might be something as simple as deciding where to place a bridge to cross over a stream. In those cases, you probably don't need to collect data. This is something that I don't think VERP captures very well---that not all projects need to be quite so complex. (Planner, August, 2014)

Within agency centralization. Stern and Mortimer (2009) reported that allocating responsibilities to a centralized entity is sometimes inefficient and expensive in recreation related NEPA processes, however this study reveals a different story. There is agreement among all but one participant in this study that they had a positive experience with the centralized guidance provided by the Denver Service Center in their experience applying VERP. The Denver Service Center Visitor Use Management team is a centralized planning unit that provides planning guidance by way of walking parks and partners through the framework process, facilitating meetings and writing technical reports.

I think there were three of them here at the time of writing the plan. They would come in for a workshop and help to get the whole planning team on the same page. It was truly invaluable—I'm just not sure if anyone working here at the park would have been able to corral us like that, we can be a difficult crowd if we want to be! (Case 2, Planner, September 2014)

Common Inefficiencies and Challenges across Cases

Staff training. The VERP framework is generally utilized for visitor use oriented planning, such as visitor use management plans or transportation plans. Park staff often consist of resource and cultural heritage managers, however very few (if any at all) have a specific visitor use expert on staff. Most participants report that the lack of focused expertise on staff limits planning success.

You look around, how many natural scientists or physical scientists are at each park. And the answer is usually multiple. Then you might ask how many social scientists are at each park. And the answer is usually none. So that to me shows very clearly that you need some staff training in people, not resources. (Case 3, Scientist, December 2014)

Along with a lack of visitor-use expert staffing, park employees in general are not being trained in visitor-use planning or taught the value of social science and visitor opinion in planning procedures.

If a person is called a park planner, they should know the fundamental planning frameworks that would drive visitor management. They're certainly required to know NEPA, right? And that's about the resource component of it. Why wouldn't they be required to at least have familiarity or basic knowledge with VERP or some other planning process? . . . I think similar training is provided to park planners or managers or staff, they just haven't done it for visitor experience yet. And I think that really shows a bias within the park service for one aspect of its mission there. (Case 3, Planner, January 2015)

The lack of visitor-use specialists employed by national parks, and the limited training available for recreation related planning has limited the ability of the park service to successfully plan for visitor use, highlighting the need for the park service to rethink their internal arrangement to more formally address visitor use management. Not only would this increase the likelihood that decision-making frameworks are more thoroughly understood and applied, but it would signify that the park service operates under the guidelines presented in its mission statement—to both conserve the resource while maintaining a quality visitor experience.

Applying science to decision-making. Planning and decision-making should be supported by science to maintain credibility and defensibility. Participant perceptions were consistent with previous literature, where respondents perceived that social science has long been poorly incorporated or undervalued into land management decision-making; both at each park specifically and in planning more generally (Cervený et al., 2011). Participants reported that reasons might include the subjective nature of social science, or the limited understanding regarding how to incorporate data into decision-making.

It's supposed to be the rational for the science, is that you have something to base it on. I still think there's maybe an air about this process that is suspect. I'm talking probably internally mostly. And subjective...social science is inevitably subjective and therefore questionable and therefore can you really put your, you know, bank all of your decisions on it? (Case 2, Planner, September 2014)

One participant from Case 3 questions the ability of the management team to use data, while another reports on successfully incorporating science into the same planning process.

That was a big learning curve for me, was sort of how to translate our studies and how they apply to management...And you know, I think it's just sort of across the board that teams don't have a good understanding of science and especially how to use science when making management decisions. (Case 3, Manager, January 2015)

However, a respondent from the same case reports:

It seems pretty apparent that they've implemented management changes as a clear result of the work done on that project...it was nice to see the changes they made directly tied to the research and recommendations that we provided. (Case 3, Scientist, December 2014)

These conflicting reports might reflect the role that each participant had throughout the planning process. Clearly, managers and scientists are coming from different perspectives and might view the process differently. Additionally, as was stated earlier, each park in this study had the help of within agency guidance from the Denver Service Center (DSC). Therefore, DSC planners may have helped incorporate the research without fully communicating the process to all parties.

Practices Where Cases Differ in Terms of Value to Achieve Success

Hiring contractors. Prior research has shown that the National Park Service (NPS), more than another agency in the Department of the Interior (DOI), hires contractors to write plans and reports. Contractors are often hired to produce documents related to NEPA compliance (Stern & Mortimer, 2009), which is often required for VERP planning processes of significant scope. However, opinions varied among respondents in terms of the value of hiring an outside contractor as part of a visitor use planning process.

...Contractors would bring a draft of that to us and we would review it, and often times it would be so wrong that we'd end up having to re-write a significant chunk. Nonetheless, that was at least how the framework functioned. (Planner, October 2015)

Others say that using outside contractors may actually foster a feeling of objectivity to counteract the threat of subjective decision-making.

...There's the perception of objectivity from the outside firm that is just unidirectionally bringing all of this information together. (Case 3, Planner, January 2015)

While some participants recognize the value of relieving park managers of report writing, others feel that contractors take valuable time and resources, as the reports are reviewed and in some cases must be re-written by staff.

Framework flexibility. The VERP framework, like other visitor-use planning procedures, was developed to be applicable to an array of planning efforts, from large scale complex planning, to site-specific, smaller scale projects. Participant perceptions regarding

VERP flexibility vary. Given that VERP was originally developed to inform large scale General Management Plans (GMP) for each park, several participants question its effectiveness when applied at smaller scales.

The full blown doing it right with the right science is an incredibly expensive and labor intensive operation . . . on the other hand, you wouldn't want to potentially use VERP and use indicators and standards based approach on a wide range of issues when information isn't available....so it's not going to be tenable for determining how many people go on just one trail, or something, you know, these smaller issues. (Case 3, Planner, January 2015)

Other participants expressed that the flexibility inherent within VERP planning procedures increases its contextual adaptability, making it useful for a wide range of purposes.

But in a lot of cases you don't have that time or that money, so there needs to be adaptation of the VERP process to allow indicators and standards to be developed in a less time consuming and costly way when necessary. (Case 3, Scientist, December 2014)

Litigation. Any planning on federally owned lands or facilities that is considered “a significant” federal action is subject to the NEPA process. This often correlates with more contentious planning, increased court pressure and the threat of litigation. Participants from each case differ in their perceptions of how federal regulations help or hinder a visitor use planning process. While some participants value litigation pressure as a means of keeping the plan at a high priority level, others perceive that litigation threatens the scientific robustness of the decisions. Once in court, the courts have the power to essentially adopt management authority and mandate an arbitrary number.

We know what we needed to deal with this capacity number, we know it doesn't make sense. We couldn't defend it...and then congress just stepped in and set the number. (Case 3, Planner, January 2015)

Similarly, decisions made in the courts do not necessarily represent limitations of the VERP framework itself, just how it has been applied.

So we've recognized that there have been some court decisions that have not fared very well for the concept of VERP, and I'd say it really isn't the framework that's at fault, I'd say it's how it has been interpreted, as well as how it has been applied at the field level. (Planner, August 2014)

Unique Perceptions

Purpose of VERP misunderstood. One participant is concerned with the way that VERP is being communicated to field-level staff within the park service. The small amount of visitor-use training provided to all park staff is not effective in communicating the purpose and expected outcomes of applying VERP.

I feel that the way that [VERP] is sold and the way it's being used currently isn't effective...the expectations are too high for them in that it's going to give them all the answers. (Case 3, Manager, January 2014)

Here, we were discussing how VERP was “sold” to park staff as a tool for helping to make decisions. This participant described feeling high expectations that VERP would aide in providing answers that park staff themselves didn’t have. Instead, it is a decision-making tool that is meant to help staff make defensible, transparent and justifiable decisions. No other participant discussed these challenges, thus, it may have been a product of how this particular park handled introducing the VERP process. It might be useful to provide a handbook with the VERP guidelines that clearly explains the purpose and outcomes of the VERP planning framework.

Interdisciplinary team (IDT) tensions. Conflicting perspectives in a work environment can hinder effectiveness and efficiency. However, only one participant expressed frustration with working on an IDT during the VERP process.

I thought the shuttles were going away and they’re like “Oh that was really never the plan, I don’t know why you understood it that way.” And I said “Well everybody in the room then, that was their understanding too.” And um, yeah...the planners, they kind of went with a wink and a nod and I think we got hood-winked a little bit. (Case 1, Manager, November 2014)

This quote illuminates concern with potential power differentials between the managers and planners. Given that the VERP process requires different disciplines and perspectives to mostly agree on the process, disagreements are bound to occur. However, there should be some level of a balance of power to address situations where field staff feel “hood-winked” by outside planners or scientists.

Perceptions across Professions

Through interviewing managers, planners and academic researchers, we could highlight the consistencies and differences in perceptions based on participants’ professional backgrounds. Table 4 highlights six areas where expert perceptions across professions differed. The plus sign (+) signifies a positive value to the planning process. A minus sign (-) represents a negative value to planning, while the slash (/) means that a participant did not touch on the topic in their interview.

Incorporating science and values to decision-making. As shown in table 4, there were no planners who reported that incorporating science and personal values was positively valued. Only three reported a negative experience, while the remaining five did not discuss the integration of science at all. Planners who did discuss the use of science to inform decisions perceived that management did not fully understand how to incorporate the research into planning, or that managers did not see the value in it. Additionally, planners voiced concern that managers did not always adopt scientific data because the results did not align with their goals. Thus, planners reported that the successful use of science to inform decisions has not been fully realized.

...There are a lot of people who talk about using science in these decisions often and will have a lot of support for it, until you actually develop the science, and that threatens their decision space. (Case 3, Planner, January 2015)

Managers mostly agreed that incorporating science was difficult, yet one manager felt that his opinion was not being valued. This could reflect a lack of understanding, or a feeling that professional opinion should out-weight outside research.

Interdisciplinary team productivity. The majority of all respondents positively valued planning with interdisciplinary team (IDT). However, all participants who reported negatively were managers. Six of the eight planners who participated in this study are not associated with a specific national park, thus do not experience IDT meetings throughout the process at one specific location. Similarly, academic researchers are sometimes not in attendance at IDT meetings. Therefore, we suggest that planners and academics are basing their perceptions of IDT productivity off other experiences not associated with VERP planning.

Table 5. Value of VERP Themes by Profession

VERP Themes	Managers (n=5)	Planners (n=8)	Academics (n=3)
Incorporating science and values to inform decisions	- - - + /	- - - / / / / /	+ - -
Interdisciplinary team productivity	- - + + +	+ + + + + + + +	+ + +
Field-level staff advocate	+ + + + /	+ + + / / / / /	+ + +
University supported research	+ + + + /	+ + + + + + + +	+ + +
Staff training	- - - - / /	- - - - - - - -	- - -
Litigation	- - / / /	+ - - - - - /	+ - -

Meanwhile, managers reported perceptions based on their day-to-day experiences. Thus, research to further explore the perceptions of staff directly participating in IDT meetings should be explored to understand communication and interactions among national park staff participating in an interdisciplinary team.

Discussion

This study revealed the complex nature of planning using the Visitor Experience and Resource Protection (VERP) framework and demonstrated that perceptions of VERP's effectiveness vary considerably. Overall, participants agreed in their perceptions of five VERP themes and differed on four.

Participants agreed that the following themes were positive; university partnerships, within agency centralization and having a committed staff advocate. Participants agreed that the following were negative; the quality of staff training about the VERP process and visitor use management in general, and the effectiveness of applying science to decision-making. Participants varied in their perception of the following components; the utility of hiring contractors, the intended flexibility of the VERP framework itself, litigation threats, and the effectiveness of working on an interdisciplinary team.

There has been no previous qualitative study about the effectiveness of applying VERP based on the perceptions of those who work closest with the framework. This paper contributes to the field of recreation management by highlighting what has worked, what has not worked, and the nuanced relationships between managers, planners and researchers. For instance, quantitative research looking at the effectiveness of VERP has focused on the *outcomes* (Manning & Lime, 1993; Manning, Lime, Hof, & Freimund, 1995). These studies ask questions like "What indicators and thresholds were developed?" and "Were those monitored over time?"

This paper focuses on the *process* of using VERP for planning—an important concept given that VERP is about the planning process, not necessarily the outcome.

This study had several limitations. Experts agreed to participate in this study based on their knowledge and experience with visitor-use planning in protected areas; however, the level of expertise varied considerably. Due to the long-term nature of planning, some parks in this study first applied the VERP framework over 20 years ago, potentially impacting the accuracy of recollection by participants. We used triangulation of both methods and sources to mitigate potential misinterpretation by the research team.

The implications of this work are many. First, our findings show that the identified limitations of applying VERP fall outside of the scope of the framework itself. This suggests that it is not necessarily the framework that needs improvement, but the structures within which the framework operates; such as improved staff training and NPS management priorities recognizing both aspects of their mission—including visitor management. The results also suggest that the VERP framework should be applicable to any scope of management project, from decisions about one site or trail in a park, to decisions about the entire park altogether. The VERP framework was intended to achieve this “sliding scale,” however this research suggests that VERP should be expanded to better incorporate how to achieve smaller scale projects. Additionally, incorporating science into decision-making was central to the conversation throughout data collection. While “using science to inform decisions” is perceived as a planning limitation within each case because it is not properly incorporated, it is also the most consistently agreed upon indicator of success among participants. Similarly, incorporating science is well-known best practice for making nearly any informed decision (Manning & Lawson, 2002), and federal legislation requires that the process be systematic, transparent and justifiable. Participants in this study recognize the importance of using science to inform decisions; yet realize that the training and tools needed to incorporate data into decision-making are often not provided to managers. We suggest that field-level park managers be equipped with the proper training and/or guidance for applying one of the most important underlying principles of VERP—incorporating science into decision-making.

Given the implications of this research, future research is suggested. First, a deeper understanding of VERP processes is needed. This is the first study to address the effectiveness of planning processes rather than outcomes, highlighting the need for future research to more precisely focus on planning processes. A quantitative follow up study of managers, planners and scientists with VERP experience could expand on this knowledge and allow for further generalizability across cases. Additionally, this paper is quite broad, focusing on all aspects of VERP. Given the broad nature of this work, some concepts may have been overlooked which deserve more attention. Future research could focus on different themes identified in this paper to illuminate potential important nuances. Additionally, because this research found that the limitations of VERP were mostly associated with the context in which VERP is being applied (national parks), future research should focus on NPS planning structures, such as centralized governance and interdisciplinary team functions to suggest ways in which planning in the NPS in general can be approved. Just as research has highlighted interdisciplinary team (IDT) effectiveness in recreation related NEPA processes (Stern & Predmore, 2012); we found that participants differed in their experiences working on an IDT, although more reported a positive value than negative. To enhance clarity and understanding of IDT communication and efficiency, we suggest that assessing the effectiveness of IDTs in a national park setting specifically would contribute to both theoretical and practical knowledge of planning in federal agencies.

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