FROM SCREEN TO SUMMIT: AN INVESTIGATION OF CLAIMS ABOUT SOCIAL

MEDIA USE FOR OUTDOOR RECREATION PURPOSES

By

Theodora Marie Doyon

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Committee Membership

Dr. Erin Kelly, Committee Chair

Dr. Nicholas Perdue, Committee Member

Dr. Steven Martin, Committee Member

Dr. Mark Baker, Program Graduate Coordinator

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ABSTRACT

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Recent increases in visitation to public lands in the U.S. are often attributed to a
rise in social media sharing of outdoor spaces, and particularly to the use of geotagging
and hashtagging for location sharing. There are conflicting views on the influence of
social media on visitation to public lands, including negative perceptions of social media
users, and positive perceptions of social media's potential to spread information to
underrepresented and underserved communities. Due to the growing interest in social
media use and its effects on outdoor spaces, it is important to understand how social
media use correlates with recreational behavior compared to the rhetoric about this type
of use. To this end, I conducted a discourse analysis of media articles on the subject, and
implemented a visitor survey about recreation behavior, attitudes, and environmental
identity at Jedediah Smith State Park, a park in Crescent City, California which is popular
on social media. While discourse analysis found that opinions on social media use is
largely two-sided for and against the technology, the survey results display a more
complex and diverse relationship between social media use and outdoor recreation
experience.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

Public lands are generally accessible to all and yet, historically, resource research and management have promoted limiting visitation to minimize impacts as a solution to overcrowding and environmental degradation (Roggenbuck, Williams, & Watson 1993; Wagar 1964). While limiting the spread of information about certain places on public lands is an effective method of preventing overcrowding in delicate ecosystems, such methods are difficult to implement equitably across visitor populations, especially when we consider that outdoor recreation culture has tended to exclude marginalized groups. As critical recreation researchers have now begun to study the consequences that techniques such as these have on the agency of underserved populations (Roberts & Chitewere 2011), the rise of social media may be challenging these traditional methods of crowd control, especially in the case of controlling the distribution of information.

As social media has become a more popular information source for visitors, it has also created tension between the recreation establishment and other user groups. This new influx of visitors is attributed to social media sharing of recreation spaces, and it troubles some managers, conservation groups, and journalists, who believe that the increase in information sharing about delicate outdoor recreation environments leaves such places open for overuse and destruction. The rhetoric around social media use in the outdoors is largely focused on the "type" of recreationist who uses social media; depicted as younger, uninformed, unengaged, and self-obsessed. As most people use social sharing platforms in some form, there is no definitive group of people who can be classified as

"social media recreationists." However, social media is a tool for outdoor recreation

information gathering that might disrupt exclusionary forms of knowledge control,

potentially making it easier for new or formerly disenfranchised visitor populations to

experience and feel comfortable in the outdoors. Rather than focusing on the effects of a

group of visitors, it is important to investigate how, as a tool for information distribution,

social media might facilitate and change outdoor recreation participation. It is important

to represent populations fairly, as historically, policy surrounding resources management

has been informed by "normative judgements" of polarizing stereotypes (Abrams, Kelly,

Schindler, & Wilton 2005, p.496). While some researchers have started to use social

media as a tool for estimating visitor populations (Wood, Guerry, Silver, & Lacayo

2013), little work has been done to explore the implications that using social media might

have for visitor experience. In this study, I seek to identify major themes in media

discourse surrounding the "social media recreationist" and compare those themes to

quantitative data collected on the behaviors and environmental identities of recreationists

who use social media as a place for discovery and sharing of outdoor spatial information.

This research will address the following questions:

1. How are social media recreationists portrayed in popular media? How does
   that representation affect the acceptance of social media users in outdoor
   culture?

2. Is there a relationship between social media use and:

   - Outdoor recreation behaviors?

   - Identities?

- Attitudes on recreation?

3. How do recreationists at Jedediah Smith State Park use social media to discover and engage with recreational spaces?

4. How do the themes attributed to social media recreationists in popular media match the reported behaviors, identities, and attitudes of social media recreationists at Jedediah Smith State Park?

Using both qualitative and quantitative social research, my study will address a knowledge gap in recreation research and management on a current and understudied issue and will contribute theoretically and empirically to the ongoing debates around democratized knowledge production and sharing. I specifically focus my quantitative research on visitors at Jedediah Smith State Park, a protected area in Northwestern California that has become popular on sites like Instagram, Facebook, and Twitter in part because of a uniquely large grove of trees within the park's boundaries called the Grove of Titans (Johnson 2017).

Critical geographers see space as sites of flux, where power is simultaneously reinforced and resisted (Aitchinson 2003). Physical space is the arena in which groups assert rights to a place and exclude other groups from it. While recreation research is often focused on the effects of crowding and establishing carrying capacities and rules to mitigate those effects (Hammit, Cole, & Monz 2015), my study attempts to acknowledge the inherited power dynamics on public lands that influence such research methods and focus instead on questions of inclusion. I ground my research in sociological notions of cultural capital in order to define the power imbalances that facilitate and reinforce

exclusion in outdoor recreation. In the context of this research power is defined within notions of cultural capital, defined as any cultural rules or "rituals" that allow association with and the respect of others. Cultural capital is largely passed down, and knowledge about cultural norms and rules are transferred through established connections in communities. Cultural capital is inextricably tied to spatial control, as those with knowledge of the accepted rituals are allowed into spaces where those rituals take place. Those with outdoor recreation cultural capital have controlled public lands recreation practices for many years, reinforcing certain cultural values that may exclude populations outside of their cultural notions. While there remains a privileged image of outdoor identity, the ramifications of this cultural bias results in uneven privilege in outdoor recreation management, leading to the exclusion of some people in parks (Flores & Kuhn 2018).

To see how such judgements of out-groups has influenced management policies on public lands, I explore who has access to outdoor cultural capital, as well as the effects of not having it. Traditionally, information about recreation in public spaces was gleaned through certain culturally accepted modes such as government agencies, expert guides, and word-of-mouth sources, ensuring that certain places were only known by those in-groups with access to such sources. This lack of knowledge flow to certain communities may have ramifications on not just park attendance, but a lack of feeling ownership or connection with outdoor space and culture, further dividing communities along lines of cultural capital.

In this study, I classify social media as a form of Volunteered Geographic Information (VGI), which relies heavily on crowdsourcing data from citizens either through participatory mapping or attaching information to geolocations with geotagging technology (Sui, Elwood Goodchild 2013). The information on social media is created outside of the bounds of cultural spheres of control, which differs from more top-down forms of information dispersal. Social media VGI is useful for populations who have not had access to or have felt limited by traditional modes of information sharing. The drawbacks of VGI is that the information may be factually inaccurate and might target specific places over others (Feick & Roche, 2013).

The rise of social media has brought both latent biases and existing cultural capital imbalances into the public forum, making it important to understand the implications of the rhetoric surrounding the newly established "social media recreationist", acknowledge the context of historical management and cultural values that have influenced this conversation. This study aims to do this by reframing the debate around social media as a tool for knowledge production and understanding how it may affect visitation on public lands.

Study Parameters

This research is focused on a case study of visitation at Jedediah Smith State Park. The park is situated just east of Crescent City, California. Jedediah Smith State Park was founded in 1929 with the donation of land from the Save the Redwoods League for the

purpose of preserving old growth forest in remote, timber dependent Del Norte County

(State of California 2019). In 1968, the park was incorporated into the Redwoods State

and National Park System. Later, in 1998, Humboldt State University Professors Steven

Sillett and Michael Taylor located and named Grove of Titans to demark a grove with

some of the tallest and most unique individual redwood trees in the county (Preston

2008). In the last twenty years, following the publishing of Preston's book, *The Wild

Trees*, which detailed some of Steven Sillett's work, as well as the rise of location sharing

on the internet, Grove of Titans and subsequently Jedediah Smith has seen a steep

increase in visitation, even though the grove itself has no formal infrastructure for visitors

and information about the grove is actively protected by the park. The greater Redwoods

State and National Parks saw a 23% increase in visitors between 2014 and 2015, and in

Jedediah Smith SP specifically, visitation was up 12% from 2013 to 2014 (Voigt 2016).

Now, as the main, unpaved road through the park sees nearly 13,000 cars a month in peak

season[1], managers are actively beginning to document and find solutions for the wide-

spread impacts of such an increase in visitation.

    As managers at Jedediah Smith State Park search for equitable and sustainable

solutions to visitor crowding in the parks, Save the Redwoods League funded a site-wide

visitor survey to capture visitor experience, perceived issues, and opinions on potential

solutions. They funded this research through this survey, with the intention that analysis

will provide insight into a new and increasingly important visitor population, useful to

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[1] According to Brett Silver, sector superintendent of California State Parks, speaking in an interview with myself and Erik Arndt for a study on management perceptions of Jedediah Smith State Park.

Save the Redwoods League and California State Parks in furthering outreach and

management decisions.

REVIEW OF LITERATURE

Introduction: Place, Space, and Power

As researchers in critical geography assert, space and power are inextricably tied together (Hubbard, Kitchin, Bartley, & Fuller 2002). When we apply this theory to the outdoor community, there is a clear feedback loop wherein outdoor cultural norms drive exclusionary management and policies which in turn reinforce those cultural norms (Shinew & Floyd 2005). Recreation research itself can reinforce some of those exclusionary management decisions, and while the recreation research field has turned towards using social media as a tool for quantifying the popularity of certain spaces (Wood, Guerry, Silver, & Lacayo 2013), researchers have yet to focus on the effects space-based knowledge disseminated through social media on human experience. Social media has the potential to reach people that traditional dissemination methods leave behind (either purposefully or accidentally) and bring knowledge beyond physical coordinates to instill different perspectives to outdoor culture.

In the context of this research, I define power dynamics through the theoretical lens of cultural capital. Through the concept of cultural capital, I will discuss the outdoor communities' relationship with spatial and knowledge control and explore how the imbalance of such power in outdoor culture has affected visitation levels. Lastly, I will discuss how the development of VGI has influenced outdoor cultural capital, in order to understand how social media is currently affecting outdoor cultural norms.

Cultural Capital and Space

Originally defined by Pierre Bourdieu, cultural capital encompasses the
knowledge that provides membership to higher social status spaces through practices
"such as labelling, speech codes, institutional gatekeeping" (Davies & Rizk 2018, p.336).
Access to cultural capital and use of such tools determine one's ability to engage in and
negotiate prepotent social situations. Bourdieu claimed that people inherit the cultural
currency of their parents, continuing disparities between classes. This cultural inheritance
has material implications for a person's wealth, health, and success in society. Randall
Collins expanded on Bourdieu's themes of cultural capital to focus on how rituals within
small groups bolster social differences. A person accepted into a culture will know and
perform the correct rules and rituals to reinforce their belongingness (Collins 1979).
While Bourdieu largely focused on cultural capital within the field of education,
sociologists have expanded on Bourdieu's original work, and his theories have connected
to fields like critical geography.

Cultural capital is inevitably linked to space. In his book *Geographies of
Exclusion* David Sibley notes how social groups with cultural capital often have the
ability define the proper use of social space through the legitimization of certain world-
views, rules, and acceptable behaviors, mirroring Collins' definition of ritual creation.
Such power over physical space to is used to geographically distance themselves from
other classes (Sibley 1995). One of these rituals is exerted through knowledge
legitimization, in which the group in power act as "guardians of established knowledge"

(Sibley 1995, p. 116). Those who fit this profile have access to cultural capital and have access to information that is largely only produced within their own small community forums. Sibley writes, "Power is not equally distributed in the knowledge industry, and those practitioners who have more of it have the capacity to marginalize or exclude the work of dissenters" (Sibley 1995, p. 115). When knowledge centers are fragmented or challenged, Sibley argues that the community in power see it as a threat to their collective identity and work hard to enforce rules to regain control. Information gatekeeping in this sense works to reinforce the cultural capital of the in-group by delegitimizing the information of an out-group.

One of the ways this legitimization of certain norms is enforced is through the construction of stereotypes of out-groups (Sibley 1995). This practice allows an in-group to remove such people from the physical spaces of everyday experience. Stereotyping works to delegitimize a group's use of land by categorizing them as out of place in a physical landscape.

As Sibley alludes, cultural capital can be transformed and transferred to other groups. One of the ways that this happens is through the development of alternative resources. Beedie (2013) writes in his work on the rules of mountaineering communities,

> Rules become social *norms* and determine our core knowledge, which is then re-affirmed through social activity. Because they are socially determined, rules have the potential to be transformed over time, but this occurs in relation to power. Power operates throughout the social world in relation to resources. Resources give the means by which we can participate in different social settings. (91)

With the expansion of knowledge creation and sharing afforded by new technology like social media, discourse around recreation and public spaces often centers on whether this knowledge is legitimate, and how it might disturb or threaten the established rules, values, and behaviors of the outdoor community. In this context, when bad behaviors are widely attributed to a new user group, it is important to acknowledge the power dynamics that have defined what acceptable behaviors are and the purpose of such rhetorical structures used to stereotype out-groups.

Cultural Capital in Outdoor Recreation

In this section, I will outline the expected values and rituals enforced in the performance of "proper" outdoor recreation. Those with outdoor cultural capital understand and abide by these values, reinforcing this behavior in popular outdoor culture. Outdoor culture has traditionally maintained tenants of "rugged individualism, solitude, and whiteness" (Flores & Kuhn 2018, p.49) as well as mastery over space. Many of these traits are dependent on possessing the resources, knowledge, and cultural capital to succeed. Proper recreationists are defined by what they prioritize, how they access information, how they behave in outdoor spaces, and how they spend their resources, leaving recreationists with different experiences in the outdoors largely ignored or diminished in favor of reinforcing the image of the former.

It is impossible to separate outdoor culture from racial and class politics in American culture. There is much writing on how fears around racial purity spurred some

of the largest conservation actions in U.S. history (Kosek 2004; Finney 2014; Powell 2016; Ray 2013). My study draws on these studies and acknowledges that these privileges are inextricably intertwined with racial politics, but in this section, I will focus on the development of these desirable outdoorsman traits throughout American environmental history across many broad socio-economic and cultural lines, and how they are used as tools to limit access to outdoor spaces today.

Jake Kosek's chapter "Purity and Pollution: racial degradation and environmental anxieties," in *Liberation Ecologies* tracks the development of conservation culture in America, focusing on the discourse used to limit marginalized racial and class groups from public lands. In his writing he identifies the "proper" outdoor subject, speaking to the cultural glorification of masculine, survivalist, and isolationist traits. Particularly in the American West, the development of pioneer culture, a tool of American colonialization of the continent, created the mythos of the rugged individual. As frontier culture faded from the American way of life, there was great anxiety over losing the masculine, isolated, conquering nature that was cultivated during the colonization of the state (Kosek 2004, p.133). Public lands were in part established to remind the American public of this mythic frontiersman; Aldo Leopold called it "Daniel Booneing" writing, that experiencing wilderness "reminds us of our distinctive national origin and evolution, *i.e.* it stimulates awareness of history" (Leopold 1987, p.177). The same sentiment is mirrored in early recreation research literature. Wagar, an early outdoor recreation researcher, writes,

> Fortunately, we still have areas for people who want to experience the wilderness or primeval conditions. These areas serve as museum specimens of the past and provide a continuing symbol and source of the self-reliance and self- discipline that are part of our natural tradition (Wagar 1964, p.14).

By preserving such spaces with a particular ritualistic reenactment of history in mind, those with outdoor cultural capital have created monuments to re-affirm such power.

This glorification of frontier life fosters an outdoorsman culture that is distinctively individualistic and moralizing. American writers, conservationists, and politicians all portrayed the American West as a place to purify oneself from the evils of modern society (Kosek 2004, p.139). The Romantic Movement imbued outdoor recreation with personal spirituality, akin to a pilgrimage. John Muir compared his time in wilderness spaces to time in cathedrals, and often went on his journey's alone to reflect on his own spiritual connection. However, in an effort to bolster his worthy connection with wilderness spaces, Muir often denigrates groups who practice alternative uses of the same land. In his travels, he lamented about different ethnic groups he met who he believed lacked the proper admiration for the western landscape which they lived and worked (Kosek 2004). He further abhorred the "'filthy' and 'lazy' habits" of the sheep herders in the area (Kosek 2004, p. 137). Muir's stereotyping of sheep herders exemplifies David Sibley's writing on stereotyping, which works to reinforce Muir's authority over the space while also diminishing the worth of the sheep herders experience (Sibley 1995).

The tenants of outdoor recreation culture promote the acquisition of what Beedie defines as authoritative resources; the ability to survive and thrive due to knowledge and

experience. "An example might be a mountain guide who has a sanctioned status because of qualifications, specialist knowledge, reputation, and experience" (Beedie 2013, p.91). Beedie further notes that authoritative resources extend beyond knowledge to "the capacity a person might have to control other people" (2013, p.91) through their ability to disseminate information and rules as an authority in that space.

Miles Powell writes in his book *Vanishing America: Species extinction, racial peril, and the origins of conservation*, "Many—perhaps most—Americans held environmental and racial views that differed radically from those of white men. But the latter's attitudes remained pivotally important because these individuals possessed political, economic, and cultural power disproportionate to their small numbers" (Powell 2016, p.11). Because those rules are enforced socially in certain outdoor spaces, the policing of the rules delineates a second class of user who does not know or follow those rules in a correct manner, thereby reinforcing the privilege of those with outdoor cultural capital.

The rise in social media sharing might be the catalyst that challenges the dominant outdoor culture by widening representation in outdoor spaces. This change has potential ramifications for visitor participation, especially when we consider how the control of knowledge has affected marginalized visitor populations in the past.

The Effects of Exclusion in Outdoor Recreation

Recreation management practices may not be intentionally exclusionary, though policies created with one type of user in mind may ignore or discriminate against populations with different needs. In order to provide high quality experiences, managers must choose what activities and amenities they can provide. The uneven distribution and attention paid to certain activities can work to exclude certain populations. The development of constraints research in the last half of the 20th century displays this early bias towards normative cultural values and a more recent reevaluation of such bias (Jackson 2005).

Within the field of recreation research, constraints refer to barriers to recreation. Constraints might limit activities, but also have the ability to affect preferences for different activities (Jackson 2005). Vacation time, sense of safety, distance to recreation space are some common constraints, as well as constraints of confidence, which can encompass proper representation, experience levels, and the knowledge of rules and skills to participate in outdoor activities (Jackson 2005). While more nuanced, how identity fits in with the dominant culture around an activity can greatly affect participation. Shaw and Henderson write, "gender roles, including both peer and family expectations about appropriate roles for females, constrained girls interested in outdoor recreation" (Shaw & Henderson 2005, p. 26). Part of this lack of confidence is in the belief that some recreation opportunities are exclusively for men (Shaw & Henderson 2005). These types of constraints were not readily recognized by recreation researchers until very recently.

In the book *Constraints to Leisure*, Edgar Jackson discusses the advent and evolution of leisure research, a broader field that contains recreation research. Early leisure studies tended to claim that "Constraints are immovable, static obstacles to participation, the most significant if perhaps not the only effect of constraints on leisure is to block or limit participation" (Jackson 2005, p. 3). Susan Shaw writes that these early theories about leisure constraints were built on a foundation of normative ideas about recreation that closely mirror established notions of traditional recreation culture; conceptualizing leisure as non-political,

> suggests that traditional definitions of leisure as a place of freedom, autonomy, individual choice, self-expression, and satisfaction are inadequate. Such definitions, which are particularly dominant in North American leisure research tend to focus on the benefits of leisure to individuals and ignore political processes and repercussions (Shaw 2001, pp.186-187).

During the advent and popularization of recreation research in the 1960s, park management and recreation researchers often saw constraints as necessary to keep visitor populations down and did not consider how these decisions were founded on and reinforced existing biases. Early recreation researcher J. Alan Wagar wrote that implementing limitations like carrying-capacity and permitting structures were a small cost for "high quality recreation" (Wagar 1964, p.5). As the field grew in the later part of the century, recreation researchers began to examine how management decisions often ignored the needs of entire populations of Americans that did not fit into normative notions of recreationists.

Robert Manning writes on the change in focus in the recreation research field,

> Social problems such as crowding began to supplement traditional concerns for environmental impacts, and participants in outdoor recreation activities were recognized as having socioeconomic characteristics, attitudes, and preferences that might be of interest to park and outdoor recreation managers (1999, p. 5).

Once visitor groups were studied intersectionally, it became apparent that knowledge of

outdoor spaces and activities was divided along race and class lines.

The control of knowledge is classed as a constraint to recreation. Walker and

Virden write,

> Providers of recreation opportunities also disseminate and market information about recreation attractions and opportunities. To the extent an agency, community, or business is ineffective or inattentive to the need to communicate to visitors about available outdoor recreation opportunities, it will contribute to the subtle structural constraint of a lack of information (2005, p. 212).

A 1997 study found that knowledge about wildland spaces was three times higher in

White Americans than African Americans (Johnson, Bowker, English, & Worthen 1997).

This barrier has larger effects than just limiting use of a space, as it also limits the

capacity to feel confident or comfortable in outdoor spaces, and limits feelings of efficacy

in such places. Roberts and Chitewere's 2011 study shows that lack of information can

reduce feelings of attachment or responsibility for to public lands;

> Simply not knowing where to go or what to do is a constraint. All groups expressed frustration with the lack of information about parks and park activities in their communities, as well as in various sources of ethnic media… some participants never thought of the park as belonging to the public or being managed by the federal government. That is, they did not see themselves as part owners of these public spaces (pp. 361-362).

In cases where outdoor recreation is already outside of one's comfort zone, the presence

of carrying capacity limits, permitting and policing of behavior might make one feel even

more uneasy; "Use restrictions and direct management techniques that limit choice can serve to unintentionally demotivate future visits to such areas" (Walker & Virden 2005, p. 212). Roggenbuck et al. write that it is more effective to focus on visitor behavior rather than crowding concerns, as managers will not seem like "restrictive policemen" (Roggenbuck et al. 1993, p.196).

The uneven dissemination of knowledge can also result in further stereotyping of different groups. Flores and Kuhn describe how Latinos are often classified as urban, low-adventure recreationists, "associated with picnicking and 'family related activities'" (Flores & Kuhn 2018, p 51). Information disseminated to Latinos might then exclude adventure sports or solitary activities. Stereotypes like this can severely limit representation of Latinos in outdoor adventure media, and also effectively silence Latino outdoor narratives from "public memory" (Flores & Kuhn 2018, p.51). Carol Finney writes similarly of the lack of African American outdoor narratives in her book *Black Faces, White Spaces.* She refers to "racialized constructions" that silence black people's connection to outdoor spaces (Finney 2014, p. 5). In ignoring these narratives, these experiences are not included in the dominant cultural understanding of outdoor recreation.

Resourcefulness and agency have the ability to build power among these communities and mitigate some of these constraints. "Agency arises from the ability of individuals and groups to recognize and exploit resources and transfer them to different contexts" (Shinew & Floyd 2005, p. 46). The latter part of this statement is particularly important in establishing that traditionally authoritative resources can be reinterpreted for

the needs of different groups. In this process, the groups relation to power changes. Hays refers to this as structurally transformative agency (1994) which "facilitates visible or radical change or the dismantling of social structures" (Shinew & Floyd 2005, p. 46). Constraints researchers have documented that minorities create safe communities for recreation as a "resistance-based framework" where there is "participation in parallel" to dominant groups, with the goal of creating "one's own sphere of influence and control" (Shinew & Floyd 2005, p.45). Community created experiences like these are important in establishing cultural capital that can contend with the dominant powers in the same space.

Knowledge of outdoor recreation opportunities is a very real constraint identified in recreation research, and the consequences of uneven knowledge dissemination creates disparities in the outdoor recreation community that influence management decisions. Social media, as a solution to such constraints, may diversify outdoor recreation spaces and change what outdoor culture looks like to include different experiences. One of the ways that social media has the ability to do this is through its unstructured nature, which allows users to construct their own knowledge, decide what is important to them, and disseminate knowledge widely without the vetting of such knowledge by authoritative agencies.

<p style="text-align:center">Building Cultural Capital through VGI</p>

Cultural capital can transfer or change with the development of new resources and technology that undermine the power of more exclusive resources (Collins 1979). VGI is

a technological development facilitated by the rise of the internet which may have this power. VGI is considered "user generated" spatial information (Feick & Roche 2013, p. 16), and outdoor recreation social media sharing is considered to fall in this category. These horizontal information sources can be widely shared, especially with the invention of geotagging and GPS sharing. Social media, as a solution to such constraints, may diversify outdoor recreation spaces and change what outdoor culture looks like to include different experiences. Information can be shared horizontally, from people between communities, and reinterpreted or expanded to the needs of the user.

While VGI existed before the internet, largely in the form of small community mapping projects, the internet has made it easy to share such information widely across platforms and to millions of users. Researchers have claimed that VGI is particularly interesting in that the information disseminated is decidedly different from traditionally produced GI. The absence of a centralized publishing source allows users of VGI to decide what information is important to them. "Specifically, these new knowledge politics entail deployment of geovisual artefacts to structure experiential, exploratory ways of knowing and tend to assert the credibility of those representations through a grounding in practices of witnessing, transparency and peer verification" (Elwood & Leszczynski 2012, p.545). In this way, VGI is a way of storytelling, sharing and learning with geographical coordinates. Feick & Roche details the ways in which VGI differs from traditional methods of mapping, writing,

> (a) spatial data use and production have been transformed from niche activities involving experts to processes that engage large numbers of amateurs with varying interests and abilities, (b) the distinction between spatial data users and

producers are blurred as individuals participate in both roles at different times, and (c) data use and production are loosely organized if at all, and are not constrained by market forces or the same regulatory standards as authoritative GI. (2013, p. 23)

These three traits of VGI fundamentally challenge the tenets of knowledge control; "The cross-scale nature of VGI presents an obstacle to governments in several ways. First, this type of activity can result in a government losing some control over a particular issue, as VGI can be communicated without regard to political boundaries" (Johnson & Sieber 2013, p. 75).

In terms of social media sharing, users can post visual media of a space, attach coordinates to it with a geotag, and use hashtags to make their post widely searchable. Other users can interact with the source of information by commenting, asking questions or liking the content. In this way, social media can spread spatial information to any user on the platform.

While the nature of social media as a VGI-integrated platform in outdoor recreation has not yet been widely studied, I did find one article on the benefits of social media use for underrepresented recreation communities. Flores and Kuhn believe that the unique abilities of social media sharing have helped Latino Outdoors, one such social media-based group, flourish;

> By offering participants the ability to express insights and opinions about activities related to the outdoors, Latino Outdoors' social-media outlets provide an important method of fostering community and developing environmental awareness for its constituents. Moreover, the Latino Outdoors webpage, blog, and Facebook groups make available important information about organizational claims and biographies of the employees and volunteers who make up Latino Outdoors. (2018, p.52)

This kind of information sharing has the potential to build new forms of cultural capital and expand the influence of groups like Latino Outdoors in the outdoor community.

With an influx of new knowledge production and sharing, there is an opportunity to accept and broaden the scope of outdoor cultural capital, or there is the opportunity to solidify and reinforce the barriers that already exist.

Conclusion: Reinforcing and Challenging Dominant Cultural Narratives

In his work on critical geography, Aitchison states that social spaces are "*sites* and *sights* of social and cultural inclusion/exclusion" (Aitchison 2003, p.70). Aitchison goes on to write that these spaces are in a state of flux, and that "spatial transformations result from continuous, dialectical struggles of power and resistance among and between the diversity of providers, users, and mediators of space." (Aitchison 2003, p.70) Shinew and Floyd write, "Leisure becomes one arena where power can be gained, reinforced, diminished, or lost" (Shinew & Floyd 2005). As the outdoor community grapples with the consequences of social media-based VGI, it is important to investigate how claims made about its users may be reinforcing power, especially if those claims are unfounded. When the outdoor community creates new labels for new communities in the outdoors, it is important to critically examine such labels. Likewise, as technology changes an element of culture, it is important to understand whether this change influences patterns, feelings, and beliefs about the spaces in which they are used. In this study I will compare

self-reported behaviors, attitudes, and identity with social media usage to evaluate if there

is a difference in social media users compared to those who do not use it and identify

what those differences might mean for park management.

METHODS

Discourse Analysis Methods

Discourse analysis, a field of study focused on discourse in social practice, has an important function in understanding use of language as channel of social interaction. Particularly in the subset of Critical Discourse Analysis (CDA), words do not only convey meaning, but are actually forces for social function themselves. All text is action, as it has an effect on the reader (Wood & Kreuger 2000). CDA attempts to understand the connections of language and power; essentially how words can be used to limit or expand cultural capital through the use of language patterns that legitimize or delegitimize certain experiences. It is important to analyze the rhetoric of popular media to understand the dominant societal beliefs about an issue. This analysis will largely focus on Critical Discourse Analysis and Content Analysis in order to organize the claims made about social media use for outdoor recreation purposes.

For the purpose of this analysis, I chose to use an online search engine to gather the sample of articles. I used Google Incognito, a service provided through the web browser that does not save information on previous searches, and therefore does not tailor search results based on previous data collected on the browser history. I paired several keywords together in order to find articles relevant to the research.[2] I scanned the first

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[2] Searches were "Social Media" + "Outdoors", "social media" + "Recreation", "Instagram" + "Outdoors", "Instagram" + "Recreation", "Social Media" + "Trails". Searches like "Social Media" + "Parks" were thrown out as many of the top hits were for social media pages of certain parks or articles geared towards management on how to engage visitors through social media.

five articles displayed from each search for relevant content. If an article was not relevant, I scanned and chose the next relevant article from the results. If an article selected from a previous search also appeared in the top five articles for another search, the next article displayed from that search was selected. I selected a total of thirty articles for analysis. I recorded article source and date in a table before starting my textual analysis.

First, I read each article thoroughly once to establish any positioning of the author, with a focus on identifying and main theses of each individual article. This reading allowed me to establish the opinion of the article towards social media and VGI in outdoor recreation. The articles were then marked as either generally positive, negative, or neutral corresponding to that position. I recorded this information in the table with article source and date.

I then read the articles again to establish any patterns of language used to establish themes about social media use in the outdoors; positioning and grouping words can convey meanings beyond their semantic meaning (Wood & Kreuger 2000).

I particularly focused on identifying agents and agency. An agent is a subject in a text, which an author will imbue with agency through use of certain active or passive language. An active agent will often be written with active verbs to imply their hand in doing something. A passive agent on the other hand may be placed as an object of a sentence, implying that something was done to them. Agents can also be established through first person narratives or indirect and direct speech.

I also focused on use of metaphor, hyperbole, comparison and prediction in order to establish meaning. Metaphors and comparisons can display to the reader a situation outside of its technical confines, whereas hyperbole and prediction can supply falsified or exaggerated results to a reader. I particularly looked at the use of language that has historically been used for the purposes of exclusion in outdoor spaces. Words like "invasion" and "over-run" harken back to narratives of infestation in conservation practices, as the attachment of destruction to certain groups of people without proper evidence can work to establish negative stereotypes.

<div align="center">Survey Methods</div>

Within the realm of recreation management, public values and behaviors can influence spatial management decisions (Coastal Services Center 2007). Surveying visitor populations can identify key issues, and core beliefs that display how a community interfaces with public lands. This portion of research was performed at Jedediah Smith State Park through quantitative, in-person surveying to gauge visitor identity, behavior, and attitudes. Within surveying, case studies like this research allow for unique data that is applicable to the characteristics of specific recreation spaces (Roggenbuck et al. 1993).

<u>Survey design</u>

There were two goals for the survey. First, to understand if and how users engaged with social media as a tool for outdoor recreation information, and second, to

understand the values, opinions, and self-reported behaviors of visitors, and how these

correlate with social media use. Following established rules for writing outdoor

recreation-based surveys, I constructed questions around my subject of study, using

fixed-scales and close-ended questions, and simplifying language as much as possible

(Vaske 2008). I designed the relevant questions for this research to be included in a larger

survey designed for the purposes of the California State Parks Department and Save the

Redwoods League, which asked general questions about demographics, visitor

experience, management options, recreation values and self-reported behavior. For the

purposes of this research, I only analyzed a section of the questions from the larger

survey. This research was particularly focused on questions about information sources,

locational interest, activities, values, opinions and behaviors (Appendix A).

Independent variables

I used four questions to determine social media use levels. The question, "How

many minutes per day do you spend on social media" attempted to separate high versus

low users of social media platforms. It is important to note that these answers display the

amount of time a participant perceives that they are on social media. While not many

peer-reviewed studies are available on usage statistics, several sources from business

analytic companies show that on average, a person spends around two hours on social

media per day. Many phones now have tracking software that allows you to see how

many minutes you spend on social networking sites per day. The average self-reported

time on social media at Jedediah Smith State Park was well below the averages shown

online of two hours and twenty-three minutes (Mander & Kavanagh 2019), and it may be true that most people underestimate how much time they spend on social media. However, the perceived amount of time spent on social networking may display how much people connect with social media as a part of their identity. By stating how many minutes per day a respondent believes they use social media, they may be portraying how important they believe it is to their daily life.

The questions "How often do you share pictures and information about places you go on social media," " How often do you seek out natural places that you see on social media," and "How often do you get inspired to engage in outdoor recreation after seeing or reading about natural spaces online," were designed to gauge a user's active engagement with social media for recreation purposes. These questions were formatted as five-point Likert scales correlating with answers spanning from "never" to "always," so as to give a participant a range on which to answer.

Dependent variables

Environmental and recreational sociologists have produced standardized tools to understand the general environmental values, behaviors, and identities of individuals. While there are many established tests to draw from, this survey uses two. The Environmental Identity Scale (EID) (Clayton 2003) is a broad environmental sociology tool but has applications to recreation research. The second is drawn from Hall & Cole's 2007 study on wilderness values and expectations in wilderness spaces.

The EID is designed to understand how important our conception of the environment in our self-defined identity (Clayton 2003, p. 52). Clayton designed the scale with social identity and community in mind (Clayton 2003). The EID works to analyze individual interactions, collective thinking, support for certain lifestyles, aesthetic appreciation, and personal history that align with dominant notions of outdoor culture. From the EID, I extracted three questions. The first, "I spend a lot of time in natural settings," is designed to determine experience and comfort in outdoor settings. This question is coupled with "I feel comfortable in the outdoors and doing outdoor activities," in order to test for internal consistency. The second question, "Engaging in pro-environmental behavior is important to me," allows participants to answer on their values of the environment. This question will be compared to self-reported pro-environmental behavior questions like "I think about how my behavior effects the environment," and questions on Leave No Trace policies. The final question I used from the EID states, "I think of myself as a part of nature, not separate from it." This question seeks to discover to what level a participant's pro-environmental behaviors are considered intrinsically motivated.

To address recreation values, I used questions from Hall and Cole's (2007) survey on recreation policy changes to the Mount Hood Wilderness area. I adapted questions about visitor preferences and values in outdoor recreation areas in order to understand the environments that social media visitors enjoy more. Questions like "I enjoy places with well-developed trails and facilities," and "Natural settings should feel undisturbed," aim to establish the types of aesthetic values a visitor might have in outdoor recreation spaces.

While these two questions should elicit different responses, in preliminary results, this was not the case, and I supplemented these attitudinal values with responses on management solutions in order to understand what amenities, infrastructure, or experience visitors may prefer. These questions assess whether different social media use levels correlated with support for more built infrastructure in parks, contrasting with traditionally valued survivalist wilderness experiences with minimal physical amenities.

In addition to the identity/value specific likert scale questions, I also evaluated behavior through several different question types. Questions like, "I follow 'leave no trace' policies," "How often do you walk off trail," and, "I carry out everything that I carry into a recreation space" ask whether a participant is aware of and follows widely accepted recreation rules.

The question "Which activities have you participated in or plan to participate in at Jedediah Smith State Park during your visit?" was asked to determine the kind of engagement with the recreation space a visitor may have. While hiking is a generally popular activity in the park, it is important to recognize different, less popular uses of space, and how popularity for those activities may differ by visitor. The question "How long do you plan to spend in this area during your trip?" also seeks to understand engagement through the amount of time a group plans to spend in the space.

In order to understand the level of knowledge a visitor has about a recreation space, participants were asked how they originally learned about the park, and then asked what source they relied on the most for information about the park. Another question asked how prepared they felt by that source.

I also included an analysis on identity factors with social media use level, as age, gender, and ethnicity are all factors that have historically limited access to recreation spaces.

With the questions selected, I aimed to get a fuller picture on how social media use and time correlate with different behaviors, attitudes and identities of park visitors, in order to contest the image of a social media recreationist in popular media, and then to refocus the debate on social media itself, and how it might affect experience, rather than typifying a large, heterogeneous user base.

Survey implementation

The survey was administered five weeks spaced throughout June, July, and the first week in August. In order to limit the sample population to those visitors who were currently participating in activities at Jedediah Smith State Park, I administered the survey in person, aiming to reach visitors who have already engaged in park activities. Visitors are more likely to consent to taking a survey after engaging in recreation activities and more likely to provide comprehensive answers to survey questions (University of Edinburgh 1983). Due to the small trail network at the survey site, locating the survey at the ends of trails allowed administrators of the survey to reach a wide coverage of the total population of visitors. Three sites were chosen for exit surveys due to their popularity and their relevance to the survey (Figure 1). One to two researchers were stationed at trailheads of Stout Grove, Boyscout Tree Trail, and Mill Creek Trail throughout the week. Due to the number of researchers, schedules at each site alternated

by day of the week and time of day. Researchers alternated start and end times of the day

to sample off-peak visitors (See weekly schedule in Appendix B). Visitors were selected

from a sampling system and approached for participation in the research, recording the

number of people who declined, as well as the number of completed surveys. After

observing the flow of visitor traffic, researchers decided to approach every other party

Reference Map for Jedediah Smith State Park

Figure 1. Map of Jedediah Smith State Park (California State Parks 2010) with survey stations marked.

exiting the trail as a sampling method. For research purposes a party was defined as a

person or persons grouped together as they approached the researcher. This method was

implemented after it was observed that (a), it was difficult to survey individuals in a

group without other members of the group participating, and (b), observing that in large

groups, sampling more than one person in that party would result in double counting

answers to questions like, "How many people are in your party?" and "How many cars

did you take to the park today?" Therefore, researchers asked that one person take the

survey, but group members could be consulted, except in questions that required

individualized answers ("What is your age?" for example.) The drawback to this type of

sampling is that group leaders often self-select as the survey participant. These people

may feel more comfortable in outdoor spaces or be more experienced with the park, and

therefore may answer questions differently than others in the group.

　　　　If the group consented to participating in the survey they were given the option of

taking the survey in person or being given a mail-in version to fill out in their own time.

Face-to-face surveying, while more time consuming, has a very high response rate and

gives visitors the opportunity to ask researchers clarifying questions (Vaske 2008),

however, due to the length of the survey, face-to-face participation rates may vary

depending on visitor schedules. Mail-in surveys were produced for this project to

mitigate some of these limitations. If the mail-in option was selected, the survey

administrator handed a member of the group a survey packet (See appendix A) and

informed that a member of the party over 18 should fill out the survey. After the

conversation ended, the researcher began their sample counting. A few times, participants

took mail-in surveys, and completed them in their car, returning them to the researcher after completion. These surveys were collected and recorded as mail-in surveys because they were not completed in the direct presence of a researcher. The data from all returned mail-in surveys was recorded separately and added to the pool of data at a later time.

If the participant chose to do an in-person interview, the researcher offered them a consent form (see appendix A) and read the consent form aloud to the participant. After the participant indicated that they understood and consented to participating in the research, the researcher gave the participant the choice to hold the tablet and complete the survey on their own or have the survey read out loud to them.

The researchers informed participants that they would answer any questions they might have throughout the survey process. After the in-person survey was completed, participants were thanked for their time and the researcher began their sample counting again. If a participant refused both forms of the survey, researchers thanked them for their time, recorded them as a refusal and started sample counting process.

If participants asked about the location of Grove of Titans prior to taking a survey, researchers would answer factually but vaguely. A standard script was used: "Grove of Titans is off Mill Creek Trail about 30 minutes." If asked about Grove of Titans during the survey process, researchers responded that it was a popular grove at the park and that they could provide more information after the survey was complete. This response attempted to mitigate our effect on visitation at Grove of Titans without acting as rule enforcement or spreading misinformation that may lead to the establishment of more social trails.

At each site researchers recorded the date, day of the week, station, time started, time ended, any time off for lunch, number of people they approached, number of in-person surveys performed, number of mail-ins given out, and number of refusals each day. After each day, survey responses were uploaded to Survey Gizmo site, and taken off the tablet. All response data was stored for analysis, and tablets were charged.

Analysis

All responses were organized in an excel file, and answers coded for the ease of analysis. Any surveys that had incomplete answers to the four questions used as independent variables were not included in this analysis. The following questions were used as independent variables;

- How many minutes per day do you spend on social media? (Continuous data)

- On the scale below from never to always, how often do you…

    o Share pictures and information about places you go on social media? (Likert data)

    o Seek out natural places that you see on social media? (Likert data)

    o Get inspired to engage in outdoor recreation after seeing or reading about natural spaces online? (Likert data)

The three Likert questions on social media use were tested for internal consistency using Cronbach's alpha tests and tested for correlation with each other. The scores were then averaged together by response to create a social media engagement score. This score was

treated as an interval value, consistent with theories on combining likert data for analysis (Norman 2010).

The continuous independent variable, "Time on Social Media" was heavily skewed to the right, so I transformed the variable using Tukey's ladder of powers transformation, which identifies the best transformation for the data. I used the results to apply a square root transformation of the time on social media variable and used it on all tests.

The dependent variables were split into categories. "Information Gathering" questions tested social media use against the type of source and the satisfaction the visitor got from that information. "Park Experience" tested the activities, spaces, and types of behaviors that visitors enjoy. The third category; "Development Opinions" tested attitudes about development and amenities in parks. Finally, "Grove of Titans" specifically tested those who said they went to the grove, their sources information about the grove, and if they supported development there (these categories are further explained in Appendix C).

First, I identified any significant p-values and non-overlapping confidence intervals in a preliminary model that included all independent variables for each response variable. In order to simplify regression models, I then ran an Akaike information criterion (AIC) test. The AIC tests combinations of independent variables to find a model that minimizes residuals and maximizes significant variables (Hurvich, Simonoff, Tsai 1998). For this study, I used the stepAIC test in the MASS package in R. With the simplified models, I recorded significance and graphed results.

I analyzed any binomial data (yes/no questions) with logistic regression testing, simplifying the model as much as possible, then recording the magnitude of the correlation (named "estimates" or "values" in tables), the corresponding p-value (significant if below .05), and confidence intervals for the model. I also interpreted the odds ratio; the factor value in which odds of answering yes increase for every one unit increase in the independent variable. I also performed an analysis of deviance (ANOVA Chi square test) on each model to check that the difference in residual deviance between the chosen model and the null model was significant. Models with non-significant deviance were not considered to accurately present significant relationships between variables with the data provided. If the proportional odds assumption was proved, I created new sample data from the existing data to graph probabilities of visitors choosing different answer levels depending on their answers to independent variables.

I analyzed continuous variables such as age through linear regression, recorded p-values, confidence intervals, and performed an ANOVA to give an indication for the descriptive ability of the chosen model.

I analyzed count data using a poisson regression, a subset of logistic regression. I recorded the same values as in logistic regression test, although instead of odds ratios, I interpret the coefficient (estimate) as the expected log count in the dependent variable for a one unit increase in the independent variable. I then performed an analysis of deviance for the model.

I analyzed ordinal data (likert scale questions) using ordinal logistic regression. I took the odds ratio of each variable, as well as coefficients, p-value, and confidence

intervals. I tested for proportional odds assumption for each model, which ascertains whether the relationship between each the categorical answers of the response variable are generally equal.

RESULTS

Discourse Analysis Results

<u>Introduction</u>

From a selection of 30 articles on the subject, I have analyzed some of the major themes in these discussions and discuss how popular media has created some stigma about social media use in the outdoors. The title, author, publishing source, and date of each article are listed in Table 1. Eight articles were neutral about social media in outdoor recreation spaces, eight highlighted positive points about the subject, and 14 had negative views. Within this sample, there are more negative views about social media use in the outdoors than other stances, indicating that the most common sentiment about the subject is largely negative.

Table 1. List of the 30 articles selected during sampling.

Title	Author	Publisher	Date	Stance on Social Media use
'Like it or Not: The Realities of Social Media in the Outdoors	Jesse Weber	Outdoor Project	11/30/2018	Neutral
Unlikely Hikers Hit the Trail	Alyson Krueger	The New York Times	05/22/2019	Positive
'Walkers are middle aged, hikers are cool'	Nosheen Iqbal	The Gaurdian	07/14/2019	Positive

Title	Author	Publisher	Date	Stance on Social Media use
Everyone wants to Instagram the world's most beautiful canyon. Should they?	Rebecca Jennings	Vox	07/11/2019	Negative
Are we 'liking', sharing and swiping the great outdoors to death?	Brooke Nolan	Adventure.com	05/27/2019	Negative
Breaking Barriers in the Outdoors: Instagram Following Required	Kitty Galloway	Bitterroot	05/03/2019	Neutral
Chasing 'likes' on Instagram, hikers break limbs—and need rescuing	Jaclyn Cosgrove	Los Angeles Times	09/23/2018	Negative
Enjoy, Don't Destroy: Social Media's Impact on the Outdoors	Hope Runyan	Platform Magazine	11/01/2017	Neutral
How an app made hiking easier—with unintended consequences	Taylor Gee	The Guardian, originally published in Outside Magazine	07/08/2019	Neutral
How Instagram is Skewing the Way We Talk About Women in the Outdoors	Cassidy Randall	Travel + Leisure	10/20/2017	Positive
How Instagram Ruined the Great Outdoors	Christopher Ketcham	The New Republic	04/18/2019	Negative

Title	Author	Publisher	Date	Stance on Social Media use
How Instagram's Being Used to Make the Outdoors More Inclusive and Diverse	Victoria Sambursky	Digital Trends	02/19/2018	Positive
How Social Media is Revolutionizing the Outdoor Community	Kevin Abernethy	The Outbound	07/28/2016	Positive
Is Instagram Ruining the Great Outdoors?	Christopher Solomon	Outside Outline	03/29/2017	Negative
Geotagging and Social Media in our Modern Age of Conservation	Katie Boue	REI Co-op Journal	08/02/2019	Neutral
How the Rise of Outdoor Influencers is Affecting the Environment	Zoe Schiffer	Racked	08/27/2018	Neutral
Meet Pattie Gonia, the Backpacking Drag Queen Promoting Inclusivity in the Outdoors	Jenny McCoy	SELF	12/11/2018	Positive
Overexposed: Social Media and the Outdoors	Ellen Kanzinger	Blue Ridge Outdoors	02/19/2019	Negative

Title	Author	Publisher	Date	Stance on Social Media use
Piles of Poop, Litter on Trails, Trampled Wildflowers. In the Social Media era, Washington's Public Lands are Being Trashed. What can be done?	Terry Wood	The Seattle Times	06/29/2019	Negative
Social Media Anxiety in the Outdoors: If a Tree Falls on Instagram…	Michael Daugherty	Appalachian Mountain Club	08/25/2017	Negative
Social Media is Making the Outdoors More Dangerous	Wes Siler	Outside Online	09/25/2018	Negative
Social Media Might Not Ruin Nature, After All	Jake Buehler	Gizmodo	08/09/2018	Positive
Stop Blaming Instagram for Ruining the Great Outdoors	Madeleine Gregory	Vice	07/26/2019	Positive
Taking in the Wonders of the World—With Instagram, of Course	Meghna Chakrabarti	WBUR On Point	06/18/2019	Neutral
The Deadly Waterfall in the Instagram Age	William Shannon	The New York Times	08/14/2018	Negative

Title	Author	Publisher	Date	Stance on Social Media use
Opinion: The Outdoors are Better Without Instagram	Ted Alvarez	Backpacker	12/16/2017	Negative
Instagram is Flooding Parks with Visitors. Not Everyone is Happy	Jane C. Hu	Quartz	08/13/2018	Negative
What's Being Done to Save Wild Spaces from Instagram	Matt Wastradowski	Outside Online	04/05/2019	Negative
Why 'Instagram Hikers' are National Parks' Saviors—and Scourges	Dan Nosowitz	New York Magazine Intelligencer	12/11/2015	Neutral
Leave These Southwest Ruins Alone	David Roberts	The New York Times	12/22/2013	Negative

Negative stances often come from outdoor related media or large newspaper sources.

Some of the earliest writing on the effect of social media on outdoor recreation was from

major news sources like the *New York Times*, but some of the more recent discussions

have expanded to outdoor themed magazines and blogging platforms.

In 2015, New York Magazine ran an early article linking visitor increases with

social media recreation, with the claim that "Many comments feature users tagging their

friends and leaving a comment with some variation of 'we should go here.' At the same

time, National Parks have experienced a huge surge in attendance over the past few

years—many of them spurred, no doubt, by Instagram" (Nosowitz 2015). This association between the rise of Instagram and an increase in attendance to public lands is a popular assumption made in many of the articles I selected for analysis. A special in the Seattle Times from June 2019 writes, "outdoors etiquette violations have increased substantially over the last five years as, perhaps not coincidentally, social-media use has exploded" (Wood 2019). In this quote, the writer, Terry Wood, goes further than Nosowitz to directly attach a rise in bad outdoor behavior to increasing social media use. The idea of internet famous spaces appears in many articles across publishing platforms: William Shannon focuses on the sudden popularization of waterfalls in the Catskill Mountains (Shannon 2018), and a written introduction to a WBUR radio show *On Point* cites Grand Teton National Park's infamous Delta Lake (Figure 2) as a "poster child for social media gone awry" (WBUR 2019).
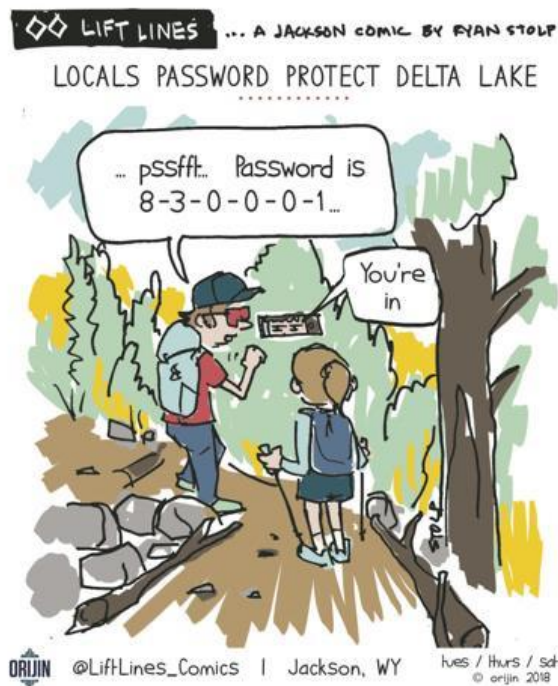
Figure 2. A cartoon published in the Jackson Hole paper discussing restricting visitors to Delta Lake as a result of out-of-town visitors discovering the destination.

From these thirty articles, I have distinguished three negative claims about people who use social media platforms to access outdoor spaces. First, that they are unprepared to participate in recreation correctly, and often time do not know the proper rules for outdoor engagement; second, that they are not engaged with nature; and third, that they are enticed by bad motives, either for profit as an influencer (a social media user that makes money from using products in outdoor spaces), or that they break rules to get the perfect photo. Writers who look at the positives of social media in the outdoors use first-person narratives, historical context, and language of inclusion to argue that social media breaks down some barriers to participation in the outdoors, allow individuals to connect

over different recreation opportunities, and expand discussions of inclusion in outdoor

spaces.

Negative claims about social media use in the outdoors

In a large number of articles that describe the perceived issues with social media

recreation, there is a clear division between what Nosowitz describes as "original parks

people" and newcomer social media recreationists. "'Outrage' is a pretty good

encapsulation of the feelings of hikers, campers, and outdoors enthusiasts who see

themselves as the true fans and protectors of the parks" (Nosowitz 2015). This type of

divisive rhetoric often focuses on portraying social media recreationists or "Instagram

Hikers" as Nosowitz writes, as younger, less experienced, and often times less engaged;

"To the Original Parks People, the national parks aren't just nice bits of the outdoors.

They're sacred, and private" (2015). Authors allude to a proprietary ownership of public

space through laments that knowledge and use of these spaces was once a hard-earned

secret. Jaclyn Cosgrove writes for the LA Times, "Growing up in the San Gabriel Valley,

Robert Garcia remembers when Eaton Canyon and Monkey Canyon, a harder-to-reach

swimming hole, were known only to locals. Today, it's easy to find the routes online and

videos on YouTube that explain just how much fun a person might have" (Cosgrove

2018). Similarly, Shannon writes, "[The falls are] far from the only [site] under such

pressures, as young explorers guided by their phones visit spots that were once local

secrets" (Shannon 2018). This sort of discourse emphasizes the proprietary rights of those

who have "earned" the knowledge of these spaces before it was easy to research them on

information sharing platforms. There is a fear that unlike traditional forms of information

sharing (such as government produced guides, commercial guidebooks, or word-of-

mouth sharing), social media sharing is letting information flow too quickly and too

widely. Zoe Shiffer writes for Racked in 2018 about the issue, and quotes an outdoor

influencer saying, "'You know when you're a kid and you find that one swimming hole

where you like to hang out and play, and then people start telling their friends, and their

friends start telling their friends…It starts growing and you can't go hang out anymore,

it's dodging crowds" (Shiffer 2018). Writers with negative views often use photos

depicting multiple groups using their phones, such as the article photo featured in Figure

3.

      Social media and internet shared VGI is not just linked to an increase in visitation

to these spaces but also to their active ruination. Christopher Ketcham (2019) writes in an

article for New Republic frankly titled, "How Instagram Ruined the Great Outdoors,"

> There was once a swimming hole in a stream-fed gorge on the public land
> of the Catskill Mountains that was gloriously free of *Homo sapiens*. You
> could go there in the height of summer and see no one…Then came
> Instagram. I won't tell you the name of the gorge or provide a link to the
> pictures, as that would only worsen the invasion of drunken, littering,
> caterwauling people in what was once a redoubt of solitude and quiet.

      Many writers argue that the reason social media is creating these issues because it

is an incomplete information source that leaves people unprepared for outdoor

experiences and costs parks money. Wes Siler writes in his article for Outside, "The cops

attribute some of the increase in [search and rescue missions] to social media and other

online tools that reveal previously little-known spots to the masses. They also blame

people who try to mimic dangerous stunts they see online or to impress their followers with new ones" (Siler 2019). These arguments often describe recreationists who do not know the rules, do not have the necessary equipment for their experience, and have not properly planned for their trip.

THINK BEFORE YOU 'GRAM

Instagram is flooding parks with visitors. Not everyone is happy

By Jane C. Hu • September 13, 2018

To geotag or not to geotag?

Figure 3. Main photo attached to an article about visitor crowding at a popular place, picturing multiple groups taking photos at the same time.

The lack of proper engagement with outdoor spaces is one of the largest concerns for writers. Quoting Casey Schreiner, the editor-in-chief at Modern Hiker, Nosowitz (2015) writes,

> 'A lot of people who are sharing these photos on Instagram, or inspired by these photos on Instagram, aren't the traditional park visitors…So they may just drive right through, pay their entry fee, and try to find the place with the photo.' This does not earn the respect of the Original Parks People; this is lazy fandom, inauthentic appreciation of a place the Original Parks People feel a partial ownership of.

Writer Ted Alvarez for Backpacker Magazine claims that focusing on taking the perfect photo prevents visitors from making memories in outdoor spaces. Rebecca Jennings mirrors this sentiment in her article about Antelope Canyon for Vox. "Viewers might reasonably believe you were having some sort of profound emotional experience, even though during the actual photo-taking you were far more concerned with how said photo would turn out" (Jennings 2019).

Deeply connected with the idea of non-engagement is the idea of Instagram users having bad motives for participating in outdoor recreation. In the introduction to the *On Point* radio program, Chakrabarti says, "The photo-sharing app quickly became the place to collect and broadcast locations as if they were medals; currency can be won by proving you climbed a mountain or bathed in a hot spring" (WBUR 2019). While bad motives are widely connected to Instagram as a whole, writers specifically target influencer culture, where individuals are sent free gear or money to advertise products in their content. Speaking about an anonymous Instagram user @publiclandshateyou who acts as an online watch-dog for public lands, Terry Wood writes for The Seattle Times, "The

account calls out people—particularly Instagram influencers serving commercial

clients—who have mashed meadows and trashed wildflowers in a quest to capture a "top-

this" nature-infused image" (Wood 2019).

Figure 4. An Instagram post by @publiclandshateyou about group hikers.

Figure 4 shows a common post by this anonymous whistleblower. In the caption,

he calls monetized group hikes that are often publicized on social media. The caption

continues:

Facebook groups and sites like 'Meetup' have put a new age spin on group hikes, allowing anyone to organize an event and invite thousands of people with a few keystrokes. I've run across a number of these large groups on hikes, as I know many of you probably have. The organizers of these events likely have the best of intentions, but good intentions do not always equal a positive outcome. Large groups are not inherently bad. The issue arises when these groups exceed group size limits, ignore [Leave No Trace] principles, and disregard basic trail etiquette. These groups are often observed barging past other users, walking side by side on narrow trails to hold conversations, and trampling vegetation at viewpoints to fit a large number of people into pictures.

Christopher Ketcham also lauds the work of @publiclandshateyou, for calling out other users posting pictures of dogs off-leash, hiking off trail, and any other violation of leave no trace policies. These writers' interest in accounts like @publiclandshateyou shows an interest in policing behavior where it spreads.

The criticism coming from popular media about social media recreationists claims that new visitors are posting pictures of beautiful vistas and leading copycats to go to the same places unprepared and unaware of the physical toll it might take to get there. Matt Wastradowski writes on the famous Delta Lake in the Tetons, "Many of those hikers, informed only by what they saw on social media, tackled the trail unaware of the 2,000-foot elevation gain and unprepared for the demands of an eight-mile round-trip trek. In addition to killer photos, hikers occasionally left with twisted ankles, broken limbs, or a rescue crew after getting lost" (Wastradowski 2019). The argument in many of these articles portrays Instagram as superficial, a source that glamorizes these spaces but does not show the work it actually takes to get there.

Christopher Solomon, writing for Outside Magazine, notes that the classing of different kinds of public lands visitors and their worthiness to be on such lands as a long-standing issue in the outdoor community, pointing towards a sort of elitism that is fundamental in the culture. "When guidebooks hit the outdoor world in the 1960s, some railed against the new democratization, claiming the authors were pointing too many people to places that had been hard-earned secrets" (Solomon 2017). Writers like this tend to fall into a neutral stance on social media in the outdoors and understand that this type of fear surrounding new technology is not new.

Positive claims about social media in the outdoors

Other writers, often on less established media platforms (e.g., blogging platforms), claim that this argument for knowledge control is a problematic tenet of outdoor culture that has excluded people from public lands for decades. Dividing recreationists into worthy and unworthy categories places blame for a whole host of environmental issues on the shoulders of those who have been historically marginalized in outdoor recreation spaces. Madeleine Gregory, author of "Stop Blaming Instagram for Ruining the Great Outdoors", "You don't need to 'earn' the right to visit public lands—that's the entire reason for their existence" (Gregory 2019). Gregory believes that social media might actually be helping break down this narrative. Some marginalized recreationists have dedicated entire blogs to showing how social media might increase representation and combat stereotypes. @melaninbasecamp posts stories from outdoor

recreationists of color, reviews outdoor gear, features inclusive campaigns and initiatives,

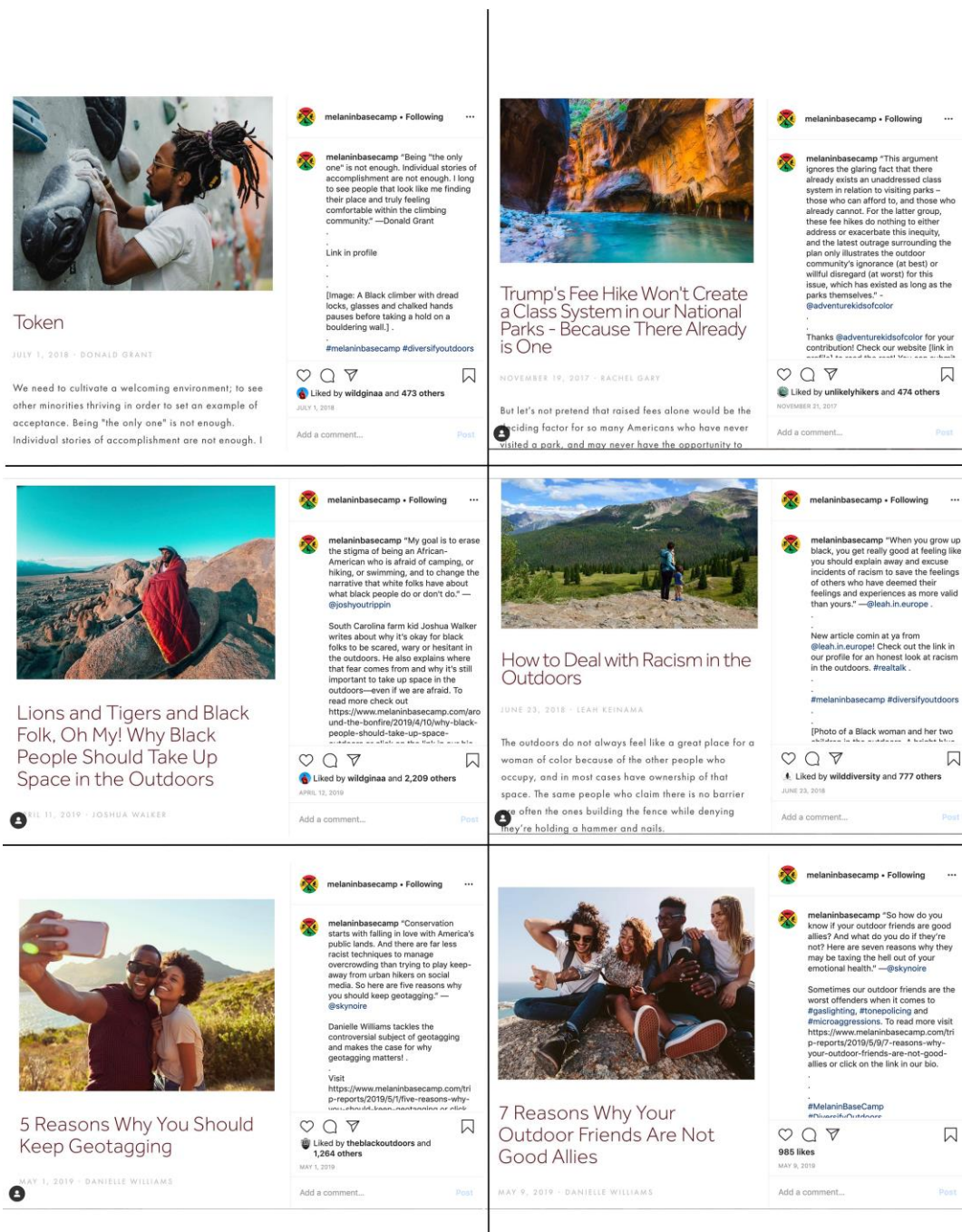and writes about inclusion and exclusion on their Instagram and website (Figure 5).

Figure 5. A selection of Instagram posts from @melaninbasecamp, a blog and social media account that discusses representation and equity issues in the outdoor community.

Gregory continues,

> Many [public faces of the environmental movement] grew up taking weekend
> trips to natural areas. It's easy to believe that it's cheap and easy to just go
> outside, but there are many barriers to entry for outdoor activities: gear is
> expensive, many natural areas are inaccessible via public transit, and it can be
> hard to know where to go. Instagram has made the last challenge a bit easier to
> overcome (2019).

Some more established sources have also begun to challenge their previous

notions of social media sharing. While Shannon's 2018 New York Times article details

the dangers of social media visitors, an article from 2019 in the same publication notes

the huge disparity in demographics at National Parks. The author, Alison Krueger,

explains that individuals from groups that are statistically less likely to use public lands

have a much harder time finding recreation information from friends or family, and if

they do overcome this barrier, they may still feel as if they don't belong due to a lack of

representation. Krueger writes of a disabled woman, Syren Nagakyrie, "She was tired of

spending hours scouring guidebooks and online resources to find accessible trails. Now

on her website, disabledhikers.com, she publishes trail reports and writes guide

trails…She also leads group hikes" (Krueger 2019). This narrative focuses on how info

can be tailored to fit the needs of unique communities.

In many articles about the positive impacts of social media recreation, there is

emphasis on sharing more than geographic information. On these platforms, coordinates

may also be paired with experiential notes, links to community creation spaces, and

knowledge often not included in guidebooks. Victoria Sambursky writes for digital trends

about inclusivity and diversity in recreation and online. She focuses on the Instagram

account, "Brown People Camping" which represents stories of marginalized groups in the

outdoors. Of the diversity issue in outdoor culture, Sambursky writes, "Though it's

natural to look the other way and think there's never been a problem with diversity in the

outdoors, history shows there is, in fact a large adventure gap. Additionally, the outdoor

industry consistently portrays itself with photos, commercials, and content of mostly

white men, on rad adventures, using the most expensive gear in the most remote

locations. What this does is create an even larger chasm" (Sambursky 2018). She goes on

to note that Brown People Camping aims to combat these barriers by creating a

community that provides, "visibility, outreach, education, meet-ups, and support to those

who feel marginalized or intimidated to get outside" (Sambursky 2018). Sambursky and

other writers note that Instagram accounts do not just exist on the internet but have a very

important in-person presence in their mission statements, often organizing meetings so

that underrepresented communities can experience outdoor spaces together.

Furthermore, some accounts actively work to combat the content of the outdoor

industry that Sambursky lists. Accounts like @ladylockoff show that you don't need to

live the lifestyle of a professional outdoorsman to have the same experiences;

> Irene Yee, @ladylockoff on Instagram with 42,000 followers, is a vocal
> proponent of the importance of authenticity in images to increase women's
> participation in outdoor adventures. She calls her photography of women scaling
> rock walls in the Southwest, 'climbing for the rest of us'…You don't have to live
> the iconic social media dirtbag van life to be a 'real' climber' (Randall 2017).

To combat the claim that Instagram superficially aestheticizes and commercializes outdoor experiences, Cassidy Randall for *Travel and Leisure* magazine, writes about how some outdoor recreation accounts are actively trying to decommercialize their content to show viewers the authentic experience of outdoor recreation opportunities. Especially for accounts focusing on women, there is an effort to show the reality of outdoor activities (Figure 6). "For every glory shot it posts, @outdoorwomen posts seven or eight images of what it actually to get to that victorious moment" (Randall 2017). This practice counters the argument that Instagram sharing is only about capturing the end result and not the experience of getting there.
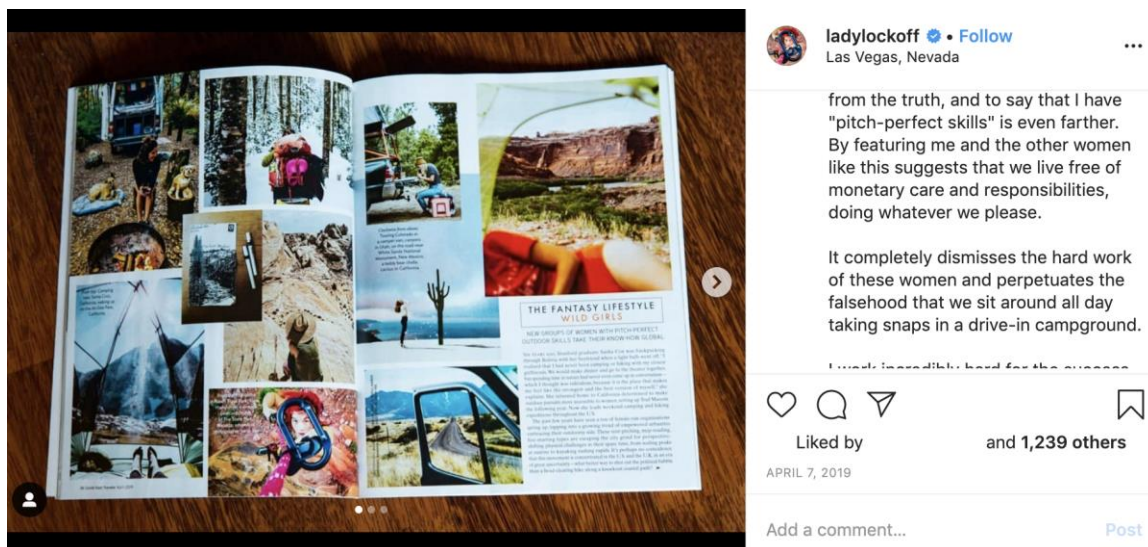
Figure 6. A post by @ladylockoff discussing the negative connotations that female adventure photographers are posting about "fantasy lifestyles."[3]

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[3] The full text of the caption reads: "Dear Conde Nast Traveler, I do not appreciate the title of this article. To say that I live in a fantasy world is far from the truth, and to say that I have "pitch-perfect skills" is even farther. By featuring me and the other women like this suggests that we live free of monetary care and responsibilities, doing whatever we please. It completely dismisses the hard work of these women and perpetuates the falsehood that we sit around all day taking snaps in a drive-in campground. I work

Some writers also argue that social media sharing expands outdoor knowledge past the traditional information displayed by guidebooks or official websites. While geotagging does provide exact coordinates to a space, it can also hold with it the politics of place names. For Blue Ridge Outdoors, Ellen Kazinger writes, "The geotagging debate also largely overlooks the indigenous communities whose land we enjoy. Sojitra [an outdoor enthusiast and influencer] regularly tags the ancestral lands on which he is skiing or hiking when posting to Instagram" (Kazinger 2019). Madeleine Gregory agrees, writing that geotagging can "help determine whose land you're standing on. An app called Native Land uses your geolocation to tell you what tribe owned that land before the U.S. government did" (Gregory 2019). These efforts to expand and decolonize knowledge control in outdoor spaces remind adventurers that the land on which they recreate is inextricably connected to the indigenous communities that live or lived there and encourages a connection to history that might be forgotten from guidebooks.

Often, pro-social media sharing articles cite that more people outdoors creates more outdoor advocates. Gregory writes on the efforts of Latino Outdoors, "A passion for

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incredibly hard for the success I've achieved. It means long hours working 80 hour weeks at two jobs. It means lugging 50lbs of gear for three hours uphill. It means pushing very hard to educate myself in a very unforgiving space. It means having amazing support from people, even when I no longer have the time for them. I have had incredible highs and just as incredible lows. This life comes with sacrifice. I have chosen these sacrifices and accept their consequences, but it is a myth to think you sacrifice nothing. You are perpetuating the idea that the outdoors is closed off to those who don't look a certain way, or who have a specific way of life, or amount of money. The outdoors and adventure is for anyone with passion, determination, and hard work; it is not a fantasy life for the experts. We are mothers, boss ladies, wives, sisters, friends, queer, straight, and all different sizes. Give these women real credit for their work as they do the grunt work to uplift and build communities that have long been left marginalized and scattered. I hope with my work to showcase those who feel they don't belong in this world, to show how diverse the outdoor community is by not letting the elite dictate what gets to be seen. I choose to live in the real world, please join me in it. -Irene, one of the only faces featured in your article."

conservation starts with a passion for the beauty of the outdoors, and a photo on social

media can spark that passion. 'You start with the connection and then you work on the

stewardship aspect'" (Gregory 2019). Even if social media recreation is commercialized

due to influencer culture, the sponsorships that some social media recreationists receive

allow them to create a livelihood and inspire their followers towards conservation

actions. Jenny McCoy writes for SELF magazine about Pattie Gonia, a backpacking drag

queen who has seen their content go viral within the last year (Figure 7). Pattie Gonia's

creator and performer, Wyn Wiley, aims to connect queer culture with outdoor culture,

but it has also become a platform for the performer himself to grow and challenge his

own privilege as a white cis-gender male. Wiley has been criticized on some

performances that came from a place of privilege, such as dancing to Disney's "colors of

the wind" song from Pocahontas without fully understanding the context of such a

performance. His social media platform gave him the space to address it with his

community and start a discussion on Indigenous issues with such representation. On the

account, he discusses the intersectional nature of being an outdoor influencer, and with

sponsorships from different outdoor brands, Wiley is able to further his mission of

inclusivity in the outdoors. "He's not interested in obtaining free swag—he's looking for

partners that will help him expand Pattie Gonia's mission through do-good work. In the

coming year, Wiley hopes to raise $100,000 for LGBT nonprofits, donate outdoor gear to

those who can't afford it, and lead groups of first-time hikers as Pattie Gonia" (McCoy

2018).

Figure 7. A post from @pattiegonia that discusses the importance of outdoor representation for queer people.

From this sampling of articles on the subject of the social media recreationist, it is clear that the representation of such communities is hotly contested. Social media recreationists are often portrayed as lazy and unengaged, with bad motives, but they are also seen as innovators, community leaders, and champions for marginalized or ignored groups of recreationists.

Survey Results

<u>Introduction</u>

Over the four weeks that the survey was administered, we approached 1000 visitor parties to participate. 101 people refused the survey, while 318 people opted to take the survey in-person, and 581 people opted to take a mail in survey. Of those who took the mail-in packets, 207 returned a completed survey. In total, 525 completed surveys were collected. The survey had a total response rate of 52 percent and a mail-in response rate of 35 percent. Of those who refused, most cited being in a hurry, having young children, or not speaking English as barriers to participation.

Visitors were largely visiting Jedediah Smith State Park for the first time (70%), and party sizes averaged about three people. Almost 90 percent of visitors were from the United States with foreign visitors coming from largely Canada, Germany, and the United Kingdom. Visitor ages varied, and largely identified as white, with fewer than 10 percent of visitors identifying as non-white. By gender, 54% of respondents identified as female, 44% as male, and under 2% identified as non-binary or third gender. Less than 1% answered that they would prefer not to say.

<u>Independent variables: time on social media and social media engagement</u>

Visitors were asked how many minutes they spent on social media per day and this score was transformed to represent a normal distribution. Additionally, three Likert questions about their engagement levels on social media. Those three questions are as

follows: "how often do you share pictures and information about places you go on social media," "how often do you seek out natural places that you see on social media," and "how often do you get inspired to engage in outdoor recreation after seeing or reading about natural spaces online." The answers to these Likert questions were coded 1-5, and each respondents' answers were averaged to create a total social media engagement score. Responses were ignored if they had failed to answer any of the independent variable questions, resulting in a sample size of 499 surveys. In the following tables, time on social media is labeled "Time," and social media engagement is labeled "Engagement."

When the three Likert scale answers about social media were averaged, 61 percent of respondents had social media engagement score averages of three or higher (Figure 8).
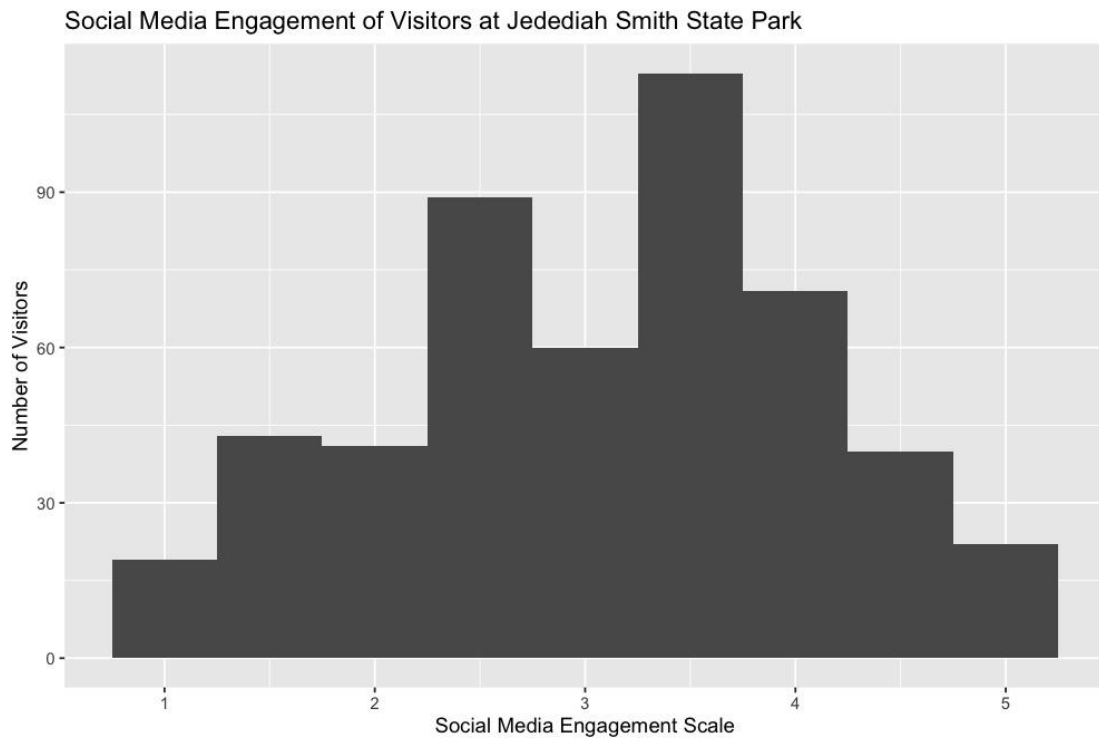
Figure 8. Number of visitors grouped by their social media engagement level.

When analyzing the raw data about time on social media per day, 62 percent of respondents reported spending 30 minutes or less per day on social media. The data is right skewed towards more time on social media (Figure 9), and in order to treat this data as continuous, I transformed the data using the square root transformation (Figure 10).
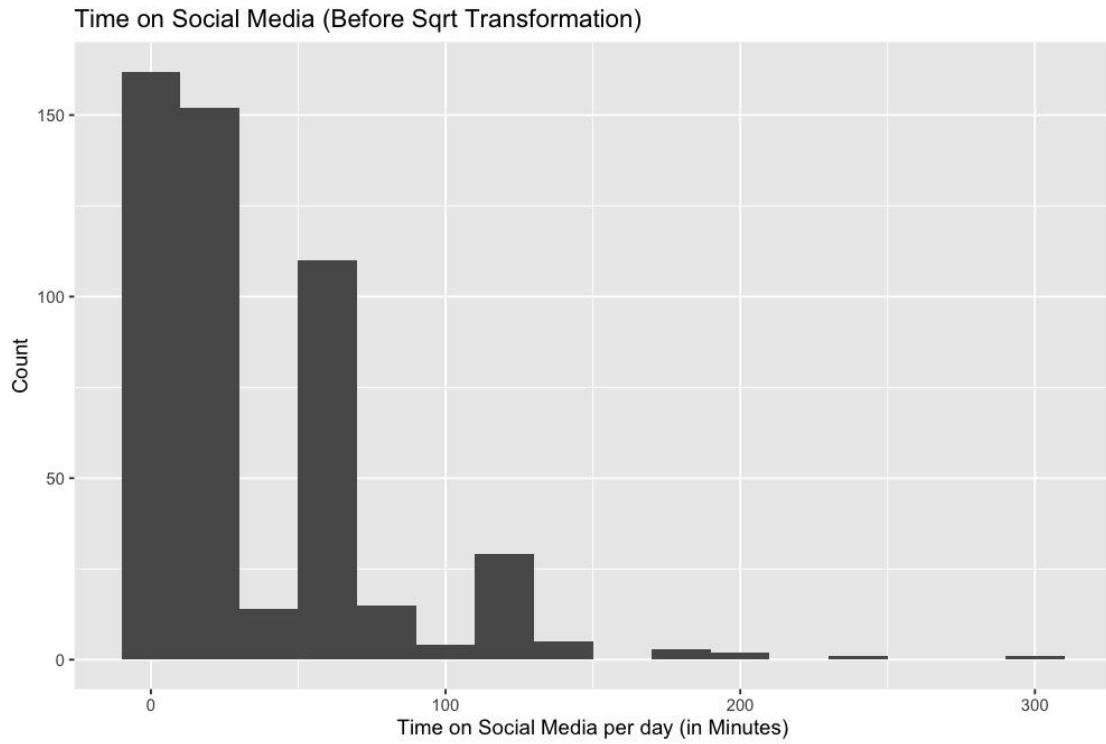
Figure 9. Number of visitors by their reported time on social media (before square root transformation).
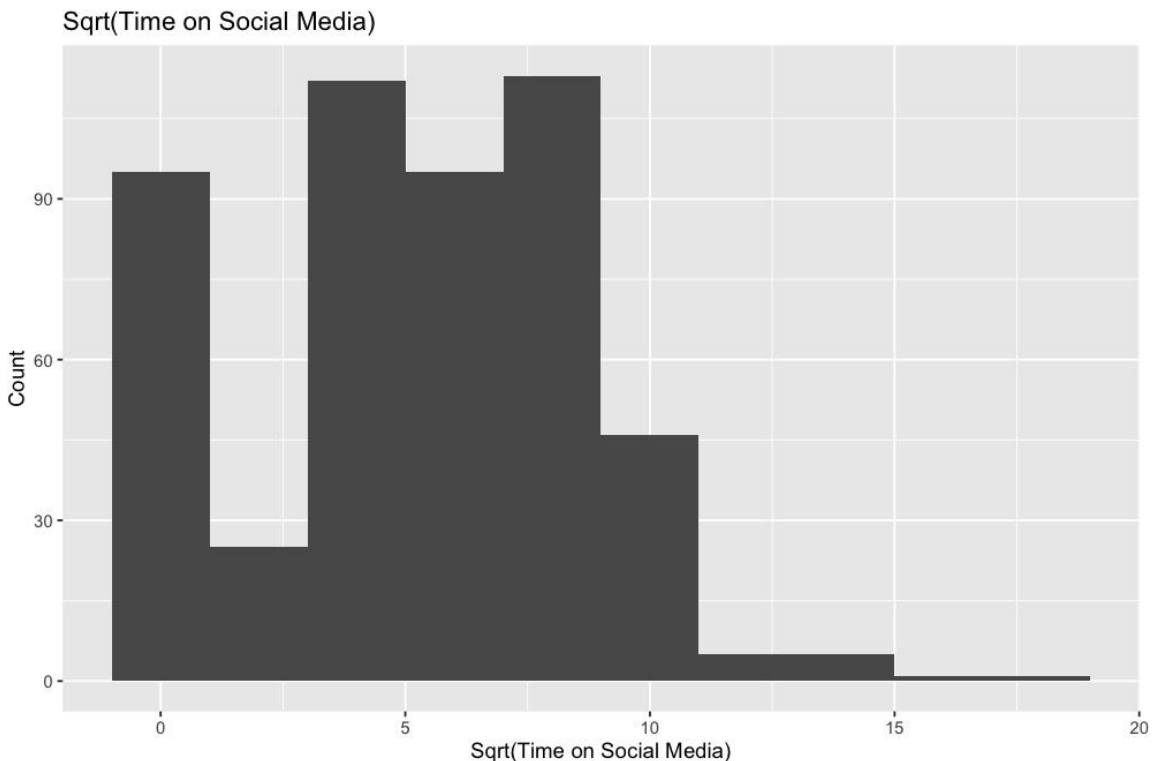
Figure 10. Number of visitors by their time on social media, after square root transformation.

When comparing independent variables with each other, social media engagement and

time on social media were highly correlated (Table 2, Figure 11).

Table 2. Regression Comparing Social Media Engagement with Time on Social Media.

	Estimate	Standard Error	T Value	Pr (>|t|)	CI 2.5%	CI 97.5%
Intercept	-0.9695	0.4122	-2.352	0.019	-1.779	-0.159
Engagement	1.9673	1.269	15.502	< 2e-16	1.7179	2.2166

Residual Standard Error: 2.843 on 496 df
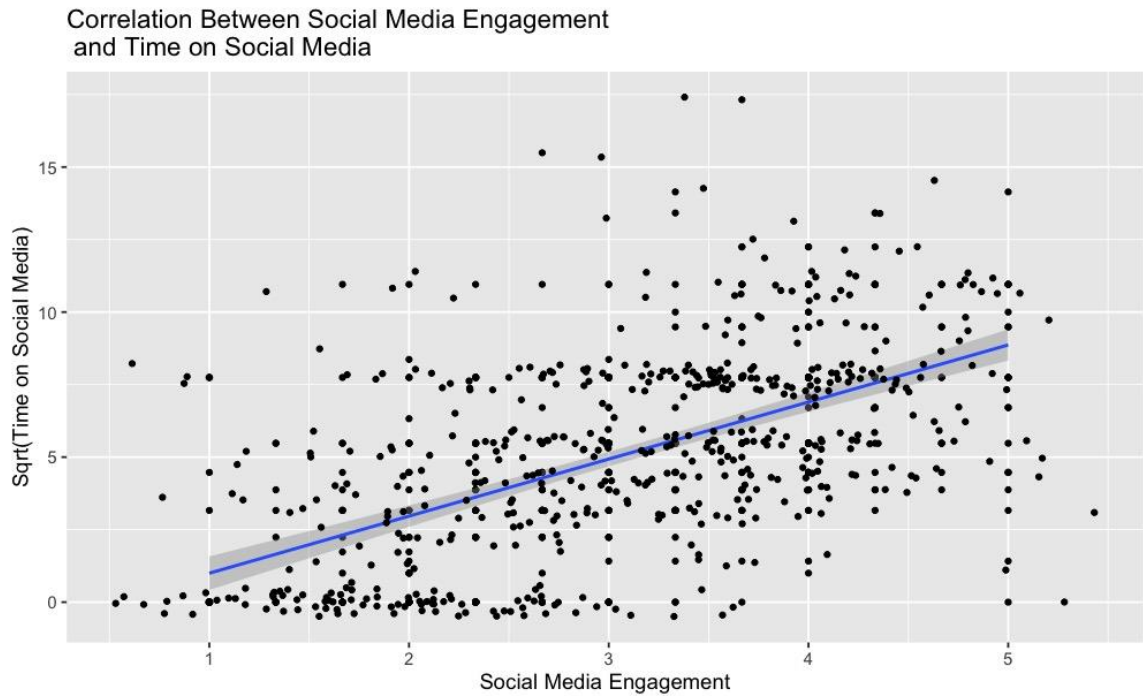
Figure 11. Correlation between Social Media Engagements and Time on Social Media.

Visualizing the data shows that while there is correlation, responses vary widely and indicate that use of social media differs. Some users do not use social media at all, while some use it little but have high engagement levels while they do. Other users have high use times, but do not engage much. Shaded area represents the 95% confidence interval for the slope of the regression line.

<u>Information sources</u>

We asked visitors how they originally found out about the park, giving them six options to choose from, as well as an "other" option (Figure 12). Visitors were allowed to choose more than one source.

Popularity of Source for Park Information
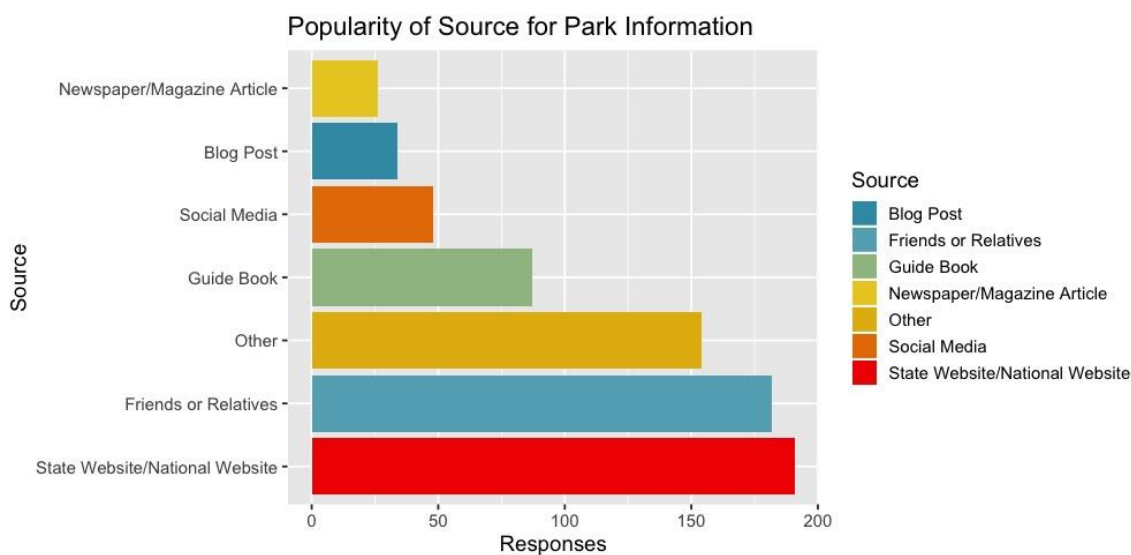
Figure 12. Visitors were asked, "in what ways did you originally find out about the park?"

State and National Websites as well as the word of mouth source "Friends or Relatives" were the most popular sources for discovering Jedediah Smith State Park. Social Media and Blog Posts, two forms of VGI, were among the three least popular of the given sources.

Of "other" sources, many write-ins included word of mouth sources, brochures, and the park information center located in Crescent City. Two subcategories of the "other" selection were as or more popular than either of the VGI sources (Figure 13).
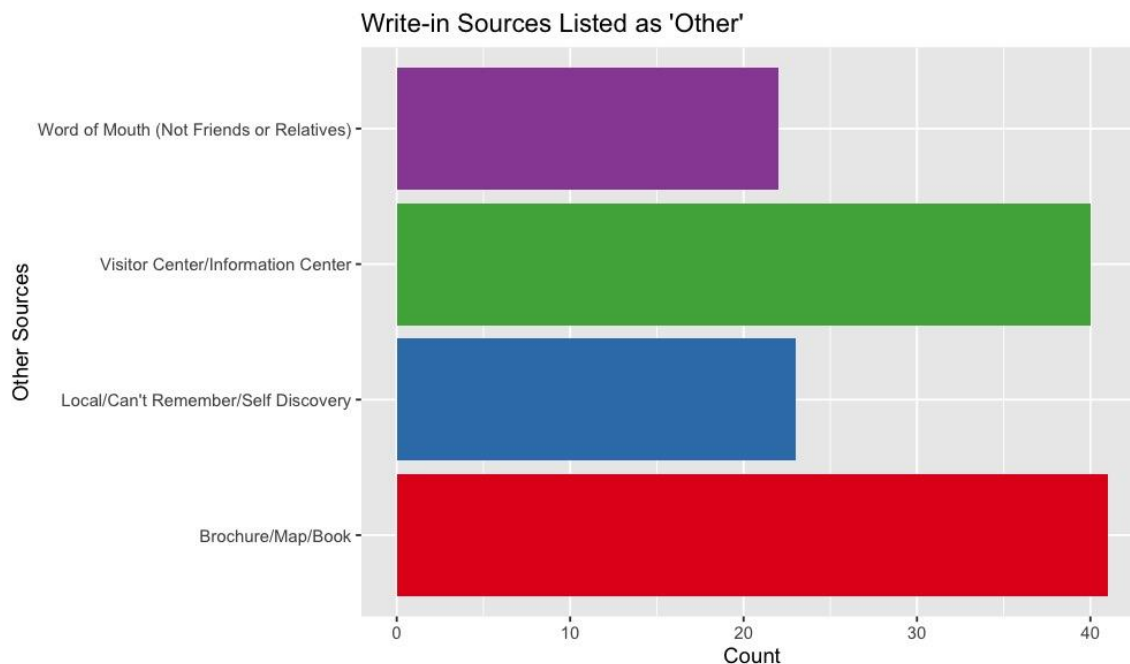
Figure 13. Over 150 respondents answered "other" when asked what information source they used to find out about the park and were allowed to list their other source. I categorized the results of the write-ins.

When I analyzed each information source against the two independent variables (social media time and social media engagement) only the two technological VGI related sources were correlated to social media use. These two sources were "blog post" and "social media."

Choosing "Blog Post" as an original information source was significantly positively correlated with social media engagement (Table 3, Figure 14).

Table 3. Logistic regression for selecting blog post as a source for information about the park.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-3.9746	0.6708	-5.925	3.13e-09	-5.3776	-2.7371	
Engagement	0.4169	0.1883	2.214	0.0268	0.05629	0.79756	1.5172

Residual Deviance:242.99 on 496 df
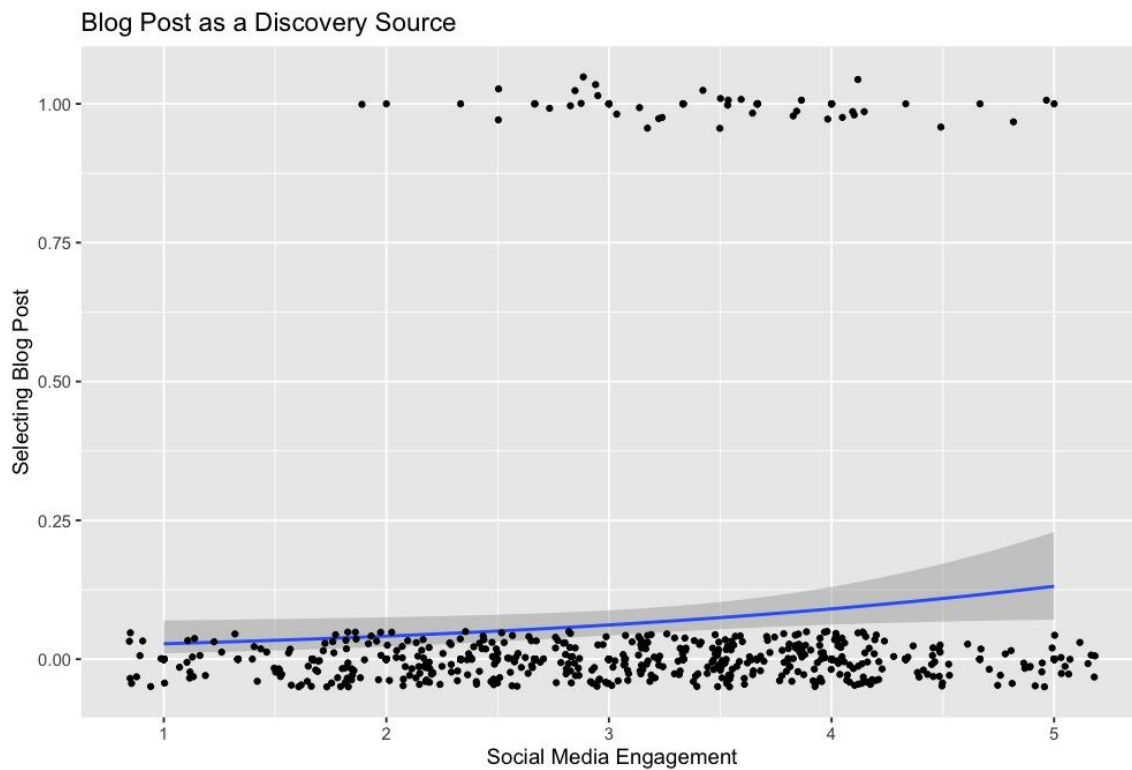
Figure 14. Social Media Engagement correlated with selecting Blog Post as a source of information about the park.

In Figure 14, probability of selection "Blog Post" as a source of information does increase as social media engagement increases. However, due to the general low popularity of selecting "Blog Post," the odds are still very low that someone with high social media engagement will find out about Jedediah Smith State Park through blog post. For every one unit increase in social media engagement, the odds of using a blog post for discovery increase by a factor of 1.51722. The predicted probabilities show how low the probability is across all social media engagement levels, despite the odds increase (Figure 15).
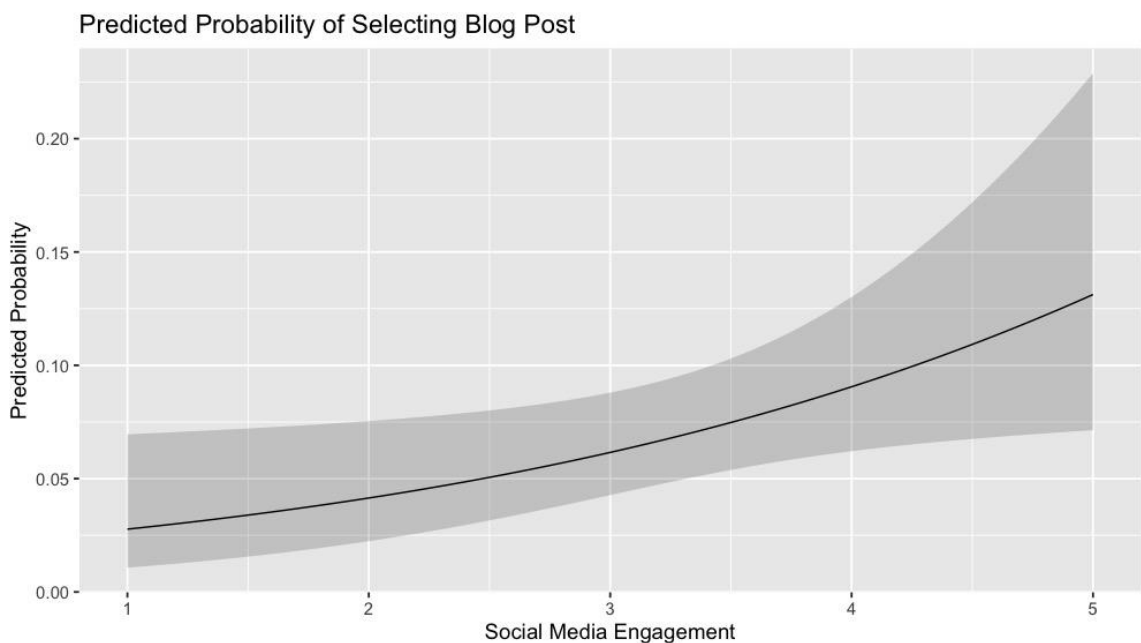
Figure 15. The predicted probability of selecting blog post as a source of information about the park increased with more social media engagement, but probability was still low.

The source "Social Media" also correlated positively with both time on social

media and social media engagement (Table 4, Figure 16).

Table 4. Regression for choosing social media as a source of information about the park.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-4.3883	0.6204	-7.073	1.52e-12	-5.6783	-3.2384	
Time	0.12159	0.05032	2.417	0.0157	0.02278	0.22077	1.1292
Engagement	0.46462	0.1872	2.482	0.0131	0.10361	0.839	1.5914

Residual Deviance 317.03 on 495 df
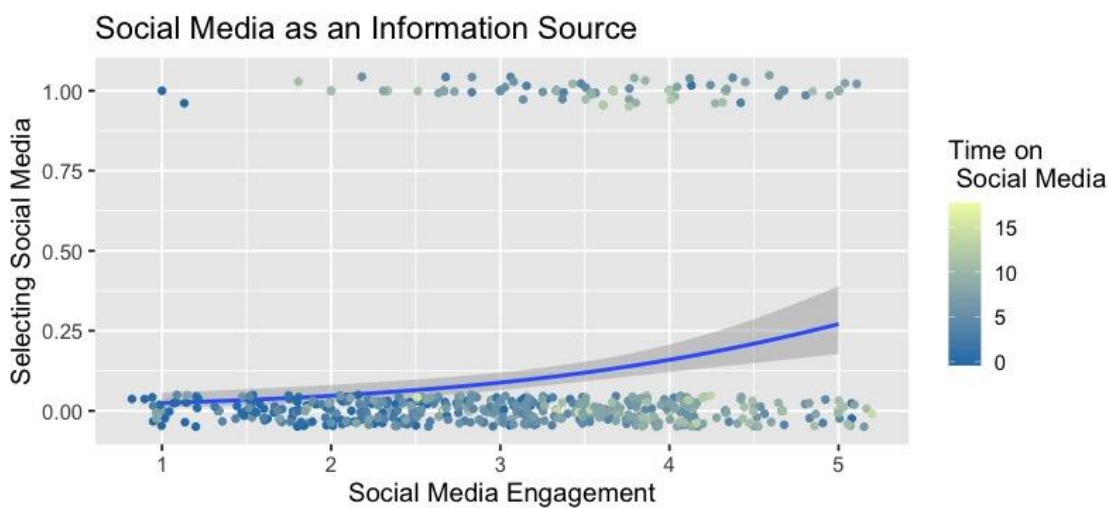
Figure 16. Social media engagement and time had a positive correlation with selecting social media as a source of information about the park.

The correlation of both social media engagement and time are significant to using social

media as an information source for the park. However, as there was a relatively small

pool of visitors who selected social media as an information source, the correlation shows

still unlikely to choose "Social Media" as a source no matter what their engagement

levels on social media are (Figure 16). For every one unit increase in social media

engagement, odds for selecting social media as an information source increases by a

factor of 1.59141. For every one unit increase in time on social media, odds for selecting

social media as an information source increases by a factor of 1.129288. In this case, we

can see that engagement has a more significant effect on choosing social media as a

source of information (Figure 16). This visualization shows that social media is not a

popular source of information for the park overall, but slightly more popular with people

who engage more on social media. Predicted probability of selecting social media as an

information source does increase with engagement levels on social media but the

confidence interval greatly widens with such an increase, indicating that predicted

probability greatly varies and may be as low as 30% with high engagement users (Figure

17).
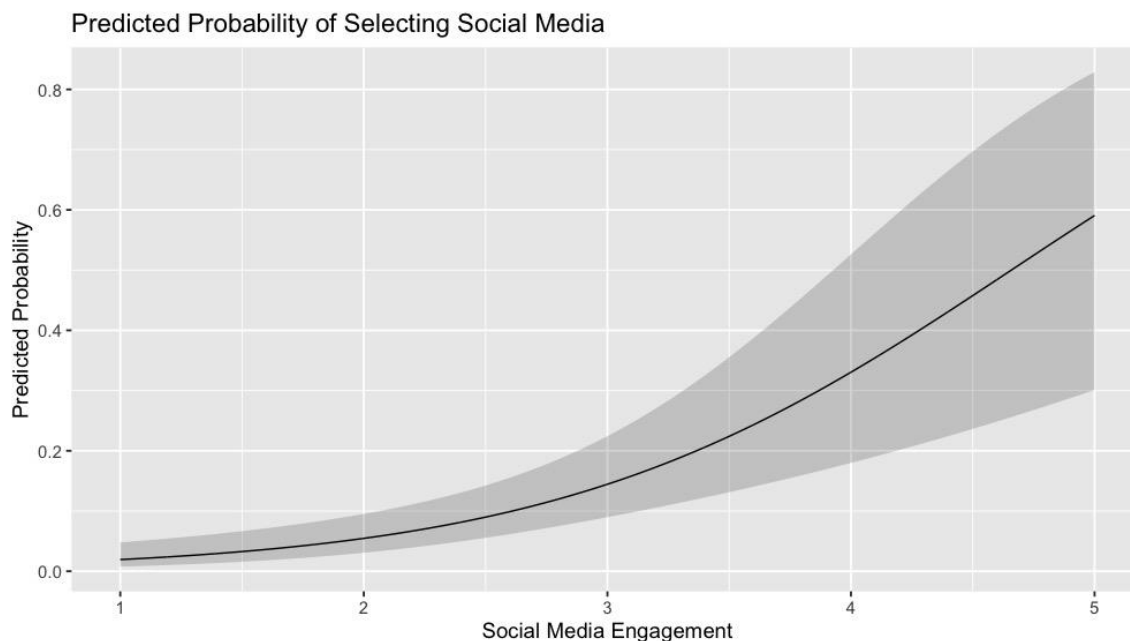
Figure 17. Predicted probability for selecting social media as an information source increases with engagement on social media.

While there was no correlation between social media use and answers to the question, "is this your first time visiting Jedediah Smith State Park?" I thought it would be interesting to compare information source with first time visitors (Figure 18). For this graph, red colors symbolize association, while blue symbolizes repulsion. Circle size represents the strength of the association. There is a strong association from returners with selecting "friends and relatives" or "newspaper and magazine articles" as a source. There is also a strong negative association among returners with VGI related sources. New visitors have a slight association with those same VGI sources.
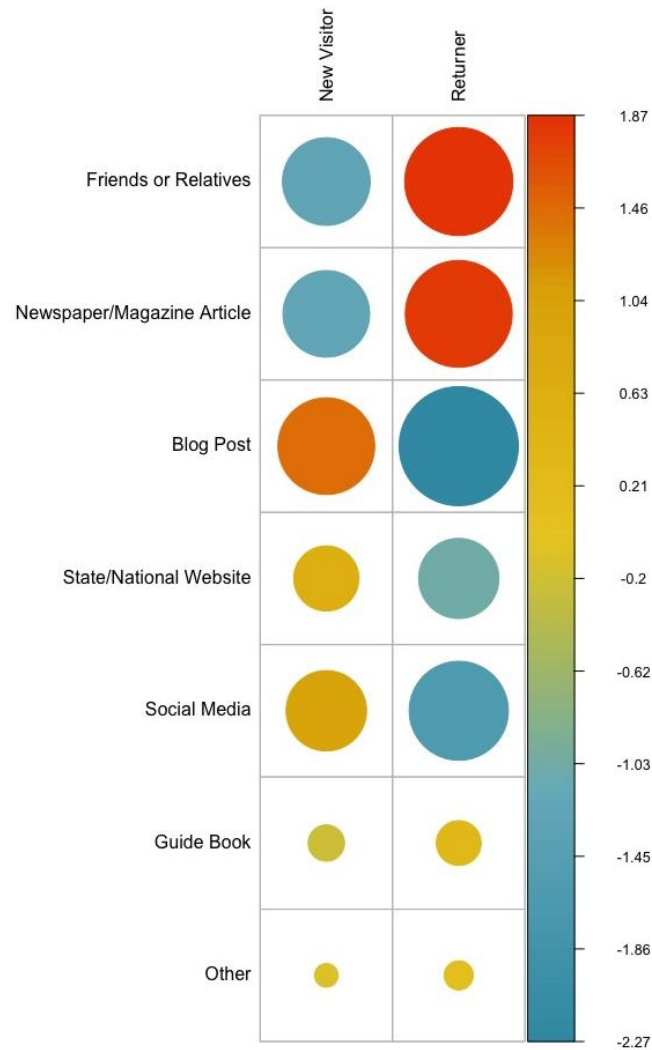
Figure 18. New visitors and returning visitors are associated with different information sources. Red symbolizes association, while blue symbolizes repulsion. Circle size symbolizes the strength of the association.

This result indicates that returners did not use VGI sources, while new visitors did.

Returners strongly associated with choosing friends or relatives and newspaper and

magazine articles as sources of information.

Activities

The survey asked visitors what activities they had or were planning to participate

in during their visit (Figure 19). All of the activities listed for selection were taken from

the official Jedediah Smith State Park website. Hiking was the most popular activity in

the park amongst the visitors surveyed. Photography and going to the visitor center were

the next most popular activities. Horseback riding and geocaching were the least popular

and did not have enough answers to provide significant results for analysis.
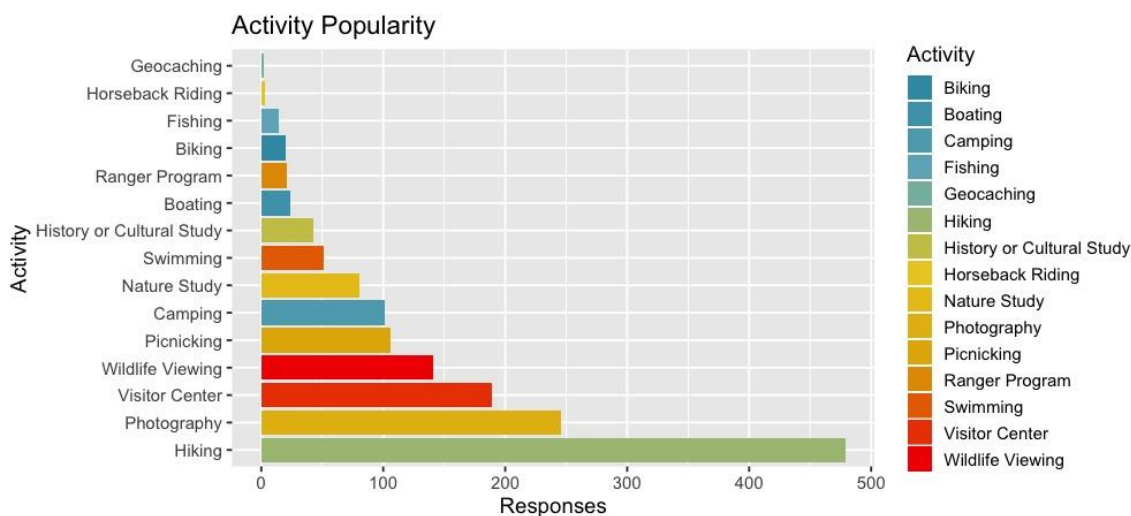
Figure 19. Popularity of answers to the question, "which activities have you participated
in or plan to participate in at Jedediah Smith State Park during your visit?"

Hiking was popular among all users, but was significantly positively correlated with

social media engagement, and, very interestingly, negatively correlated with time on

social media (Table 5, Figure 20). This could indicate that it was more likely that people

with high engagement levels, but low time levels would choose hiking from the list.

These people might optimize their time on social media to find information, but do not

linger on social media.

Table 5. Regression results for hiking as an activity.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	1.6485	0.65493	2.517	0.01183	0.41664	3.003	
Time	-0.16071	0.07217	-2.227	0.02596	-0.3004	-0.015	0.8515
Engagement	0.83073	0.27517	3.019	0.00254	0.29551	1.3816	2.2949

Residual Deviance: 158.23 on 495 df
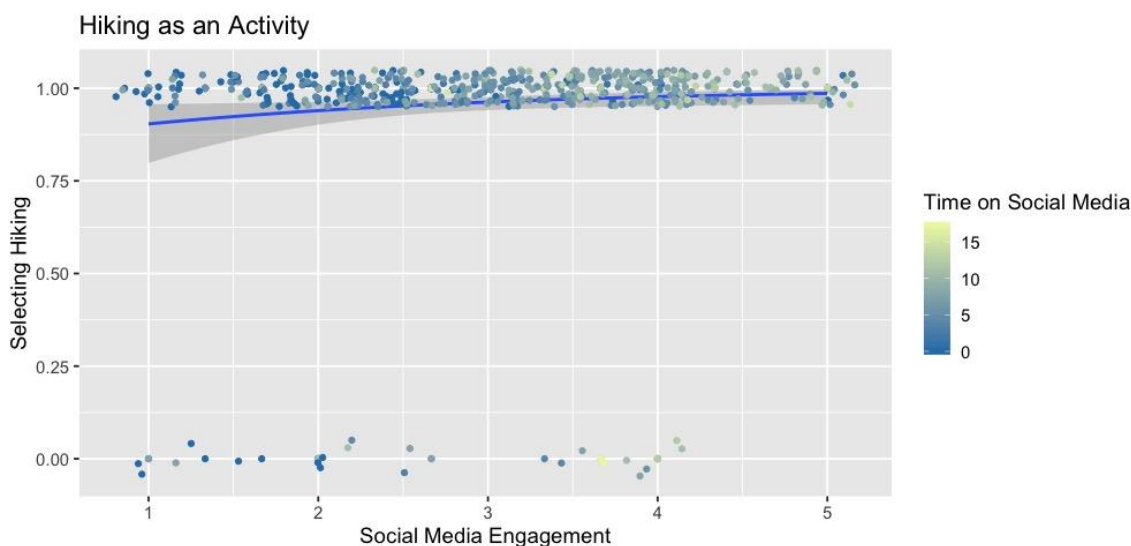
Figure 20. Social media engagement and time mildly correlate with selecting hiking as an activity.

As visualized in Figure 20, the likelihood of a visitor at Jedediah Smith State Park

selecting hiking is already high but increases with social media engagement. Time on

social media limits the curve of the regression, but it is still overall a positive trend. For

every one unit increase in time on social media, the odds of selecting hiking as an activity

decrease by a factor of 0.8515, but for every one unit increase in social media

engagement, the odds increase by a factor of 2.2949. When analyzing the predictability of

such a model, it is clear that the increase in probability in the predictive model is very

minor and the confidence interval is very large, therefore indicating that this model may

not be a good predictor of behavior (Figure 21). Selecting photography as an activity was

positively correlated with social media engagement as well (Table 6, Figure 22).
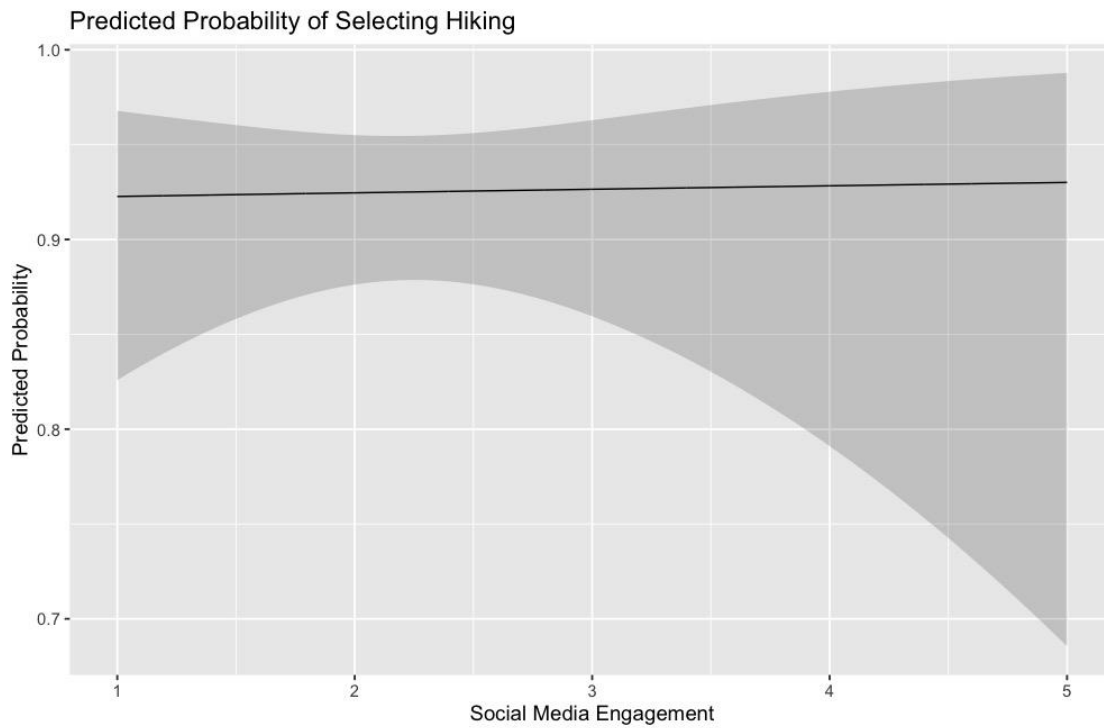
Figure 21. Predicted probabilities of selecting hiking slightly increase with social media engagement increases.

Table 6. Regression results of photography as an activity.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-0.75932	0.29491	-2.575	0.01003	-1.3432	-0.185	
Engagement	0.23787	0.09075	2.621	0.00876	0.06116	0.4174	1.2685

Residual Deviance: 683.32 on 496 df
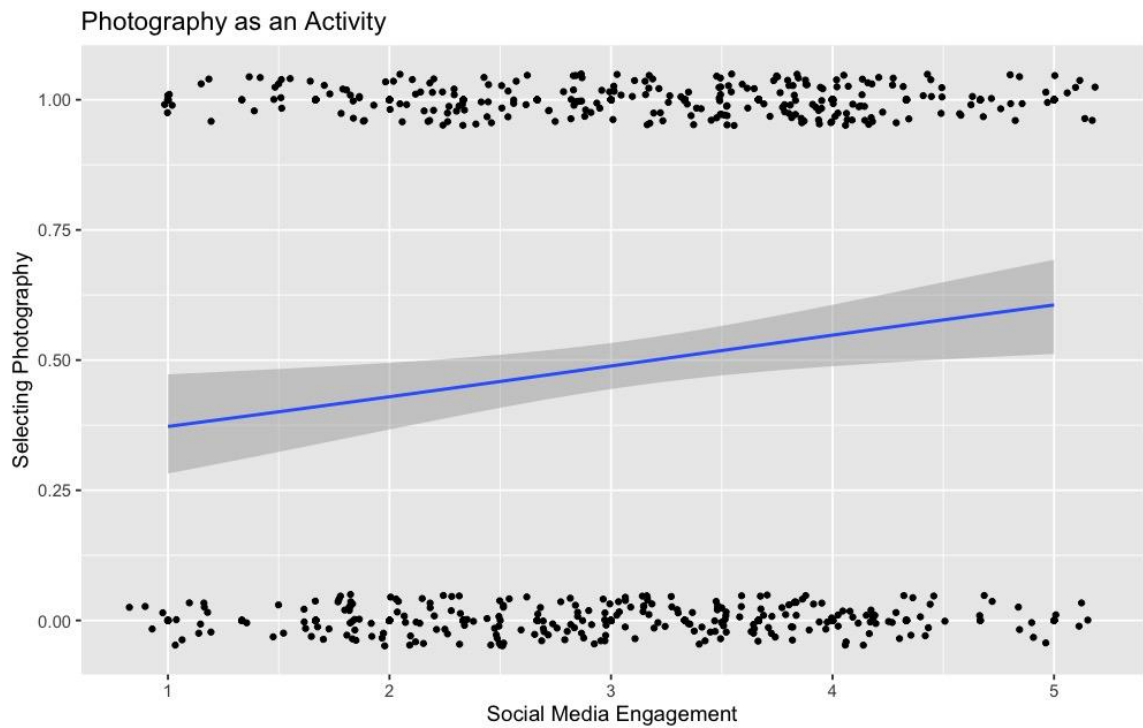
Figure 22. Social media engagement is positively correlated with selecting photography as an activity.

For every one unit increase in social media engagement, the odds of selecting

photography as an activity increased by a factor of 1.268545. The predicted probability

test shows similarly correlated results (Figure 23).
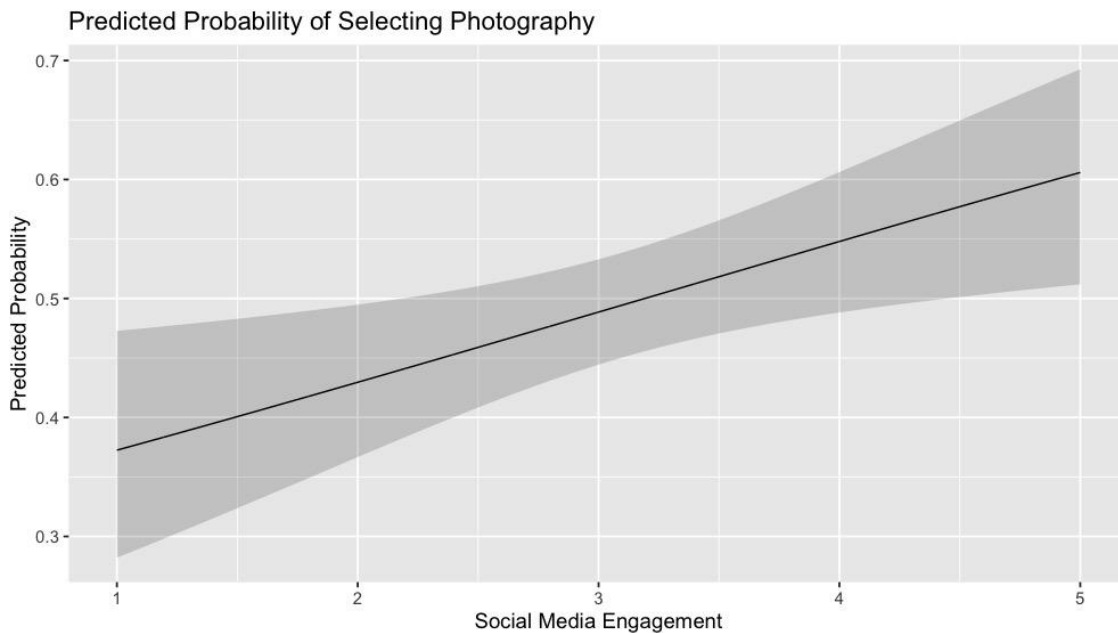
Figure 23. Predicted probability of selecting photography as an activity increases as social media engagement does.

While picnicking was an activity with relatively low popularity, social media engagement was also positively correlated with the activity (Table 7, Figure 24). The magnitude of this correlation is low; for every one unit increase in social media engagement, the odds of selecting picnicking as an activity increase by 1.33404. The predicted probability tests reveals that with the model, there is still a very low predicted probability of selecting picnicking as an activity even as social media engagement increases (Figure 25).

Table 7. Regression of picnicking as an activity against engagement levels on social media.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-2.2219	0.383	-5.801	6.58e-09	-2.9962	-1.492	
Engagement	0.2882	0.1128	2.556	0.0106	0.06975	0.51268	1.334

Residual Deviance: 508.91 on 496 df
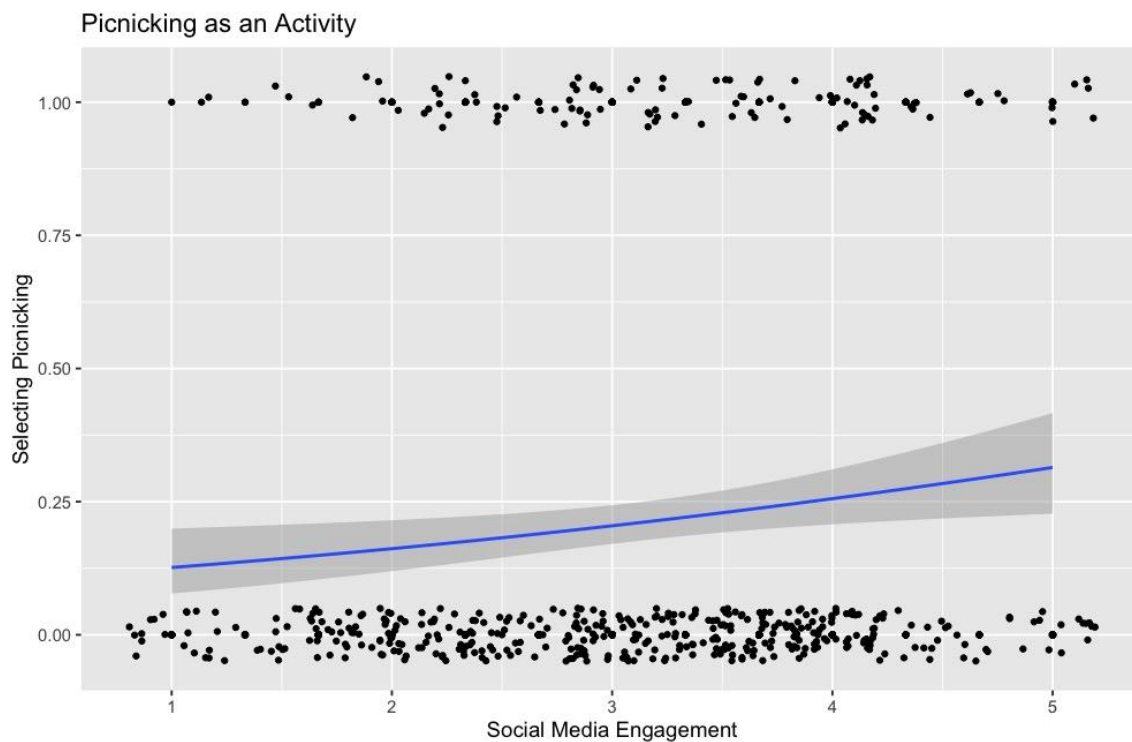
Figure 24. Social media engagement is correlated with selecting picnicking as an activity.

Predicted Probability of Selecting Picnicking
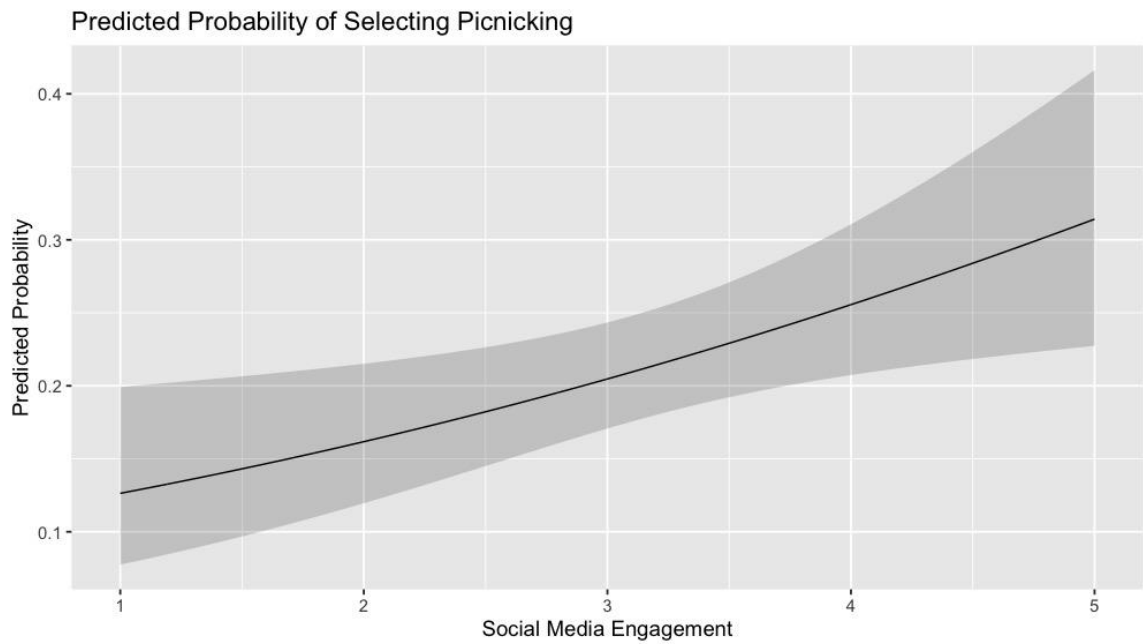
Figure 25. Predicted probability of selecting picnicking as an activity increases with social media engagement.

The finding that social media engagement is correlated with a less common activity might indicate that engagement on social media might increase engagement in different activities that others do not choose as often. Corroborating this assessment, total number of activities chosen was significantly positively correlated with social media engagement (Table 8, Figure 26).

Table 8. Regression results of total number of activities selected.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%
Intercept	0.90323	0.08679	10.596	< 2e-16	0.7331	1.0733
Engagement	0.06684	0.02718	2.595	0.01394	0.01355	0.1201

Residual Deviance: 535.04 on 496 degrees df
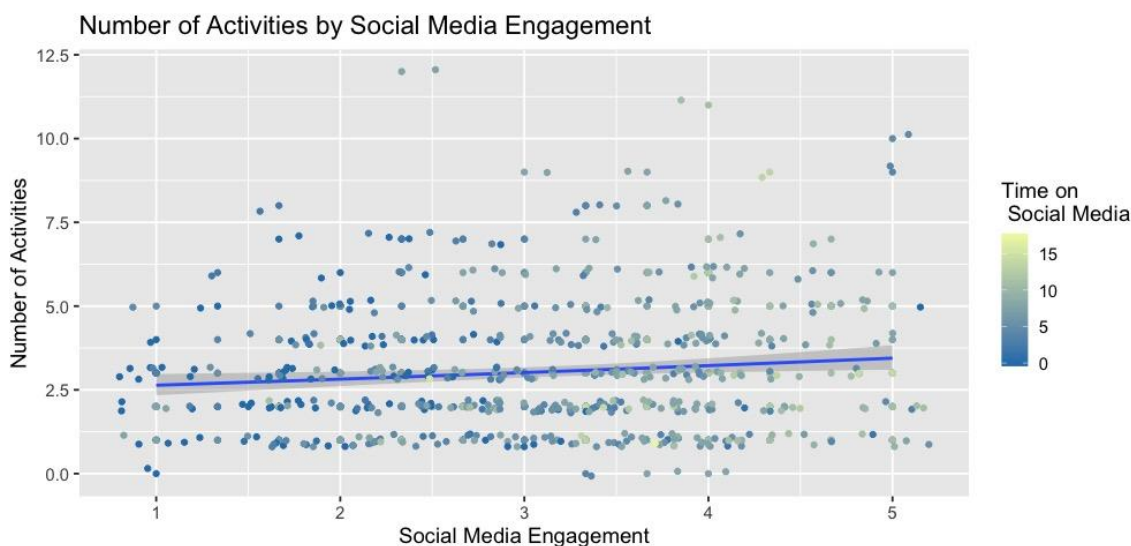
Figure 26. Social media engagement is positively correlated to the number of activities selected. Data points are jittered on the y-axis for ease of interpretation.

Development opinions

The survey asked visitors about their support for a number of infrastructure development proposals at the park. Answers to these questions may gauge a visitor's support for park improvements on a broader scale.

There was no significant correlation between any independent variables and support for the implementation of a shuttle system in the park, implying that social media

engagement and time on social media do not affect attitudes on using a shuttle. However,

when asked if they would pay for a shuttle, social media engagement was significantly

positively correlated with support for paying shuttle fees (Table 9, Figure 27).

Table 9. Regression results for support for implementing fees for a shuttle.

	Estimate	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-0.41069	0.3036	-1.353	0.1761	-1.009	0.1824	
Time	-0.0539	0.03296	-1.635	0.1020	-0.119	0.0102	0.947
Engagement	0.24317	0.11347	2.143	0.0321	0.0225	0.4683	1.275

Residual Deviance: 636.43 on 460 df
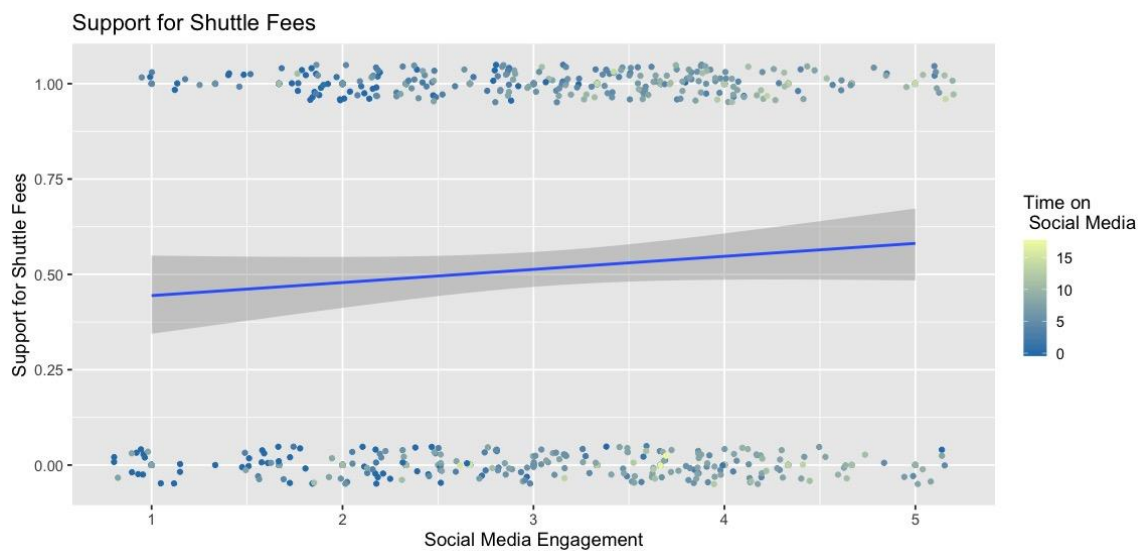
Figure 27. Social media engagement has a positive correlation with support for shuttle fees.

For every one unit increase in social media engagement, support for shuttle fees increases by a factor of 1.27528. The predicted probability test reveals that this regression model might not be reliably predictive, as the predicted results show a negative correlation (Figure 28). There was no significant association between the independent variables and paying for private vehicle entrance fees.
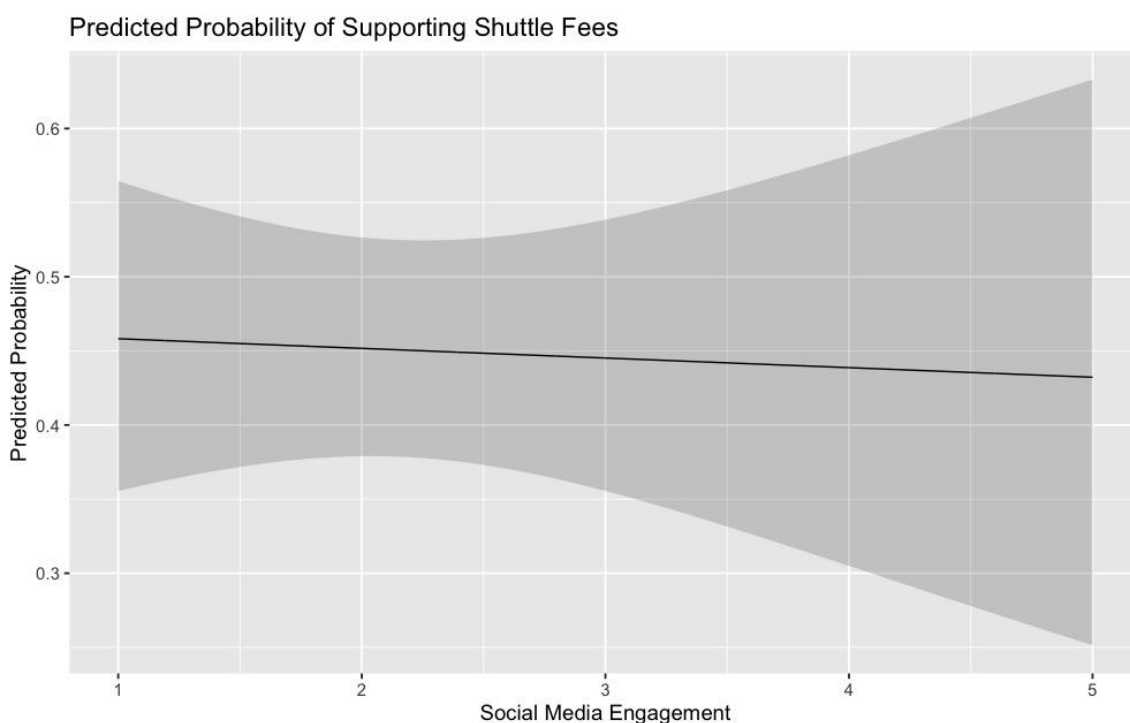
Figure 28. Predicted probability of supporting shuttle fees decreases by social media engagement.

Visitors were asked their level of support for a number of park improvement ideas. In the following analysis, I will supply a bar graph of support levels amongst the entire sample, as well as a boxplot that displays median social media engagement or time values for each support level and first and third quartile limits.

Visitors were asked if they supported expanding the trail system at Jedediah

Smith State Park. This question was positively correlated with social media engagement.
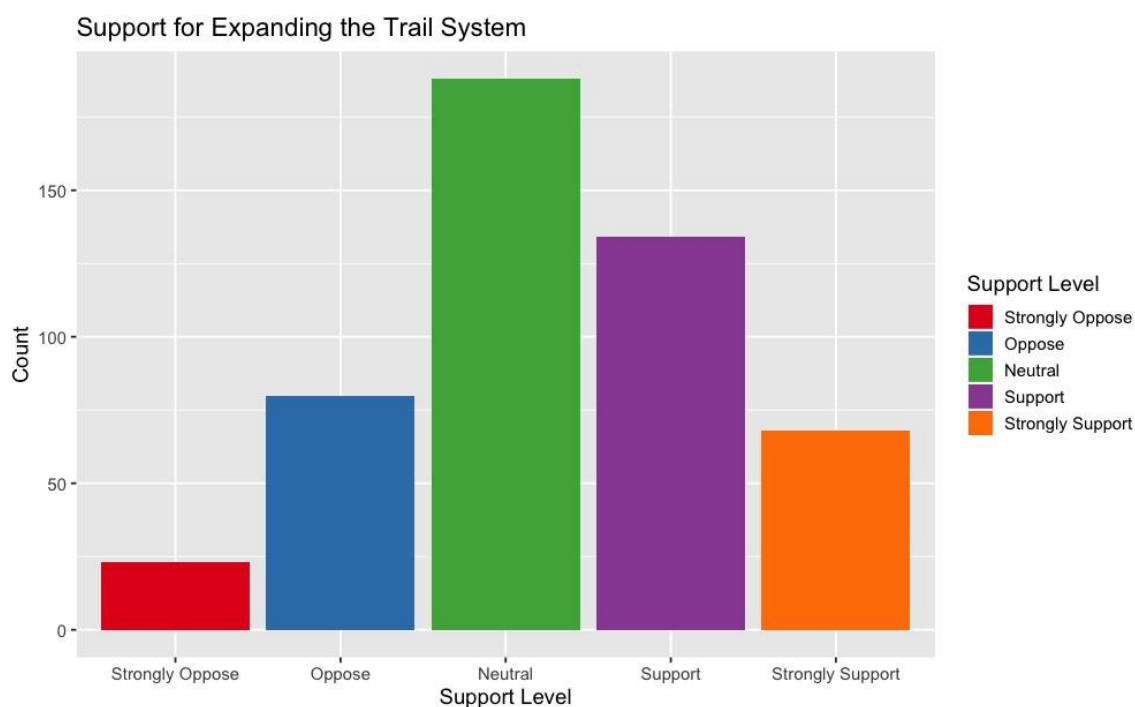
Figure 29. Support levels for expanding the trail system at Jedediah Smith State Park among all social media use levels.

General support for expanding the trail system was largely neutral to positive (Figure 29).

When the same data were organized by social media engagement levels, it is clear that

the median social media engagement level is higher for those visitors in the support and

strongly support levels as well the strongly oppose level(Figure 30).
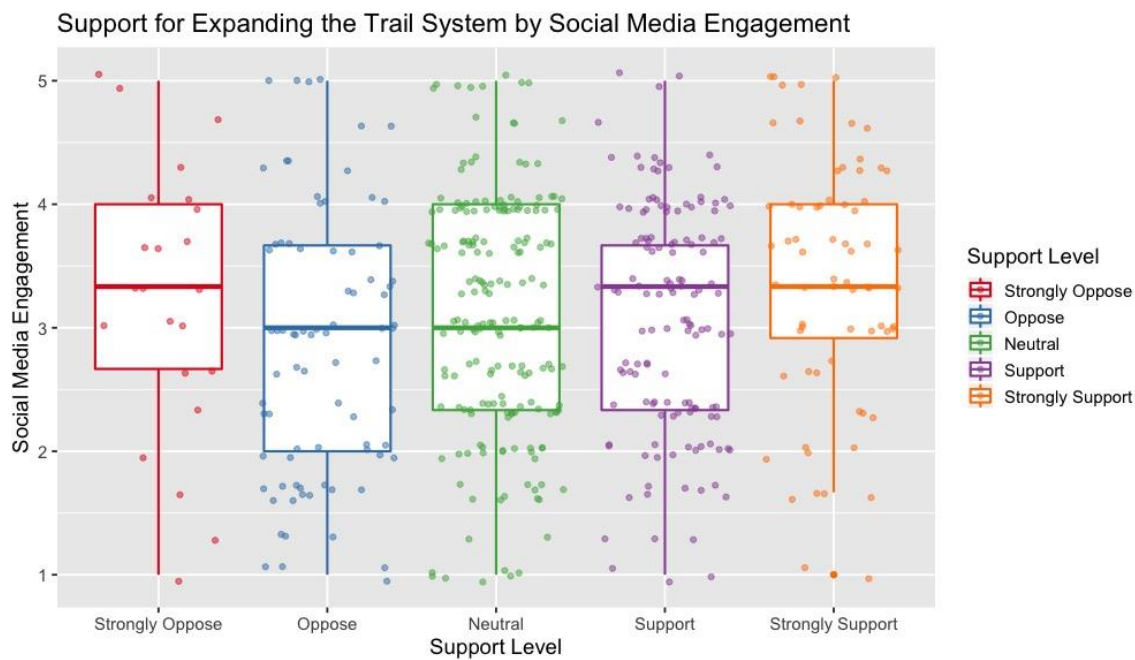
Figure 30. Support levels for expanding the trail system by social media engagement level.

After performing a logistic ordinal regression test on the data, social media engagement was positively correlated with support for expanding the trail system (Table 10).

Table 10. Regression of support for expanding the trail system against social media engagement.

	Value	Standard Error	T Value	Pr (>|t|)	CI 2.5%	CI 97.5%	Odds Ratio
Engagement	0.1844	0.08364	2.204632	2.748e-02	0.0207	0.3488	1.2025

Residual Deviance: 1408.09

When I created new data from the sample to determine their probability of support level

based on the ordinal logistic model (Table 10), I was able to graph the probability of

support level by social media engagement (Figure 31).
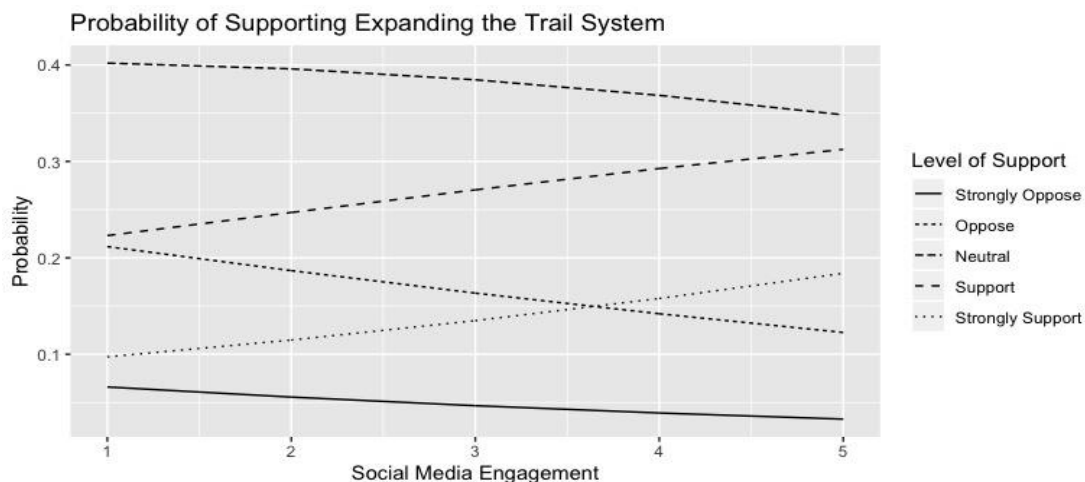
Figure 31. Predicted probability for supporting an expansion of the trail system by engagement on social media. Probability of supportive stances increase as a visitor social media engagement increases. As social media engagement increases the proportion of support versus oppose responses shifts towards positive stances.

While probability of strongly opposing, opposing, or being neutral to the expansion of the

trail system declines as social media engagement level increases, the probability of a

visitor selecting a supportive or strongly supportive stance increases by about 10%

between the lowest social media engagement level and the highest one.
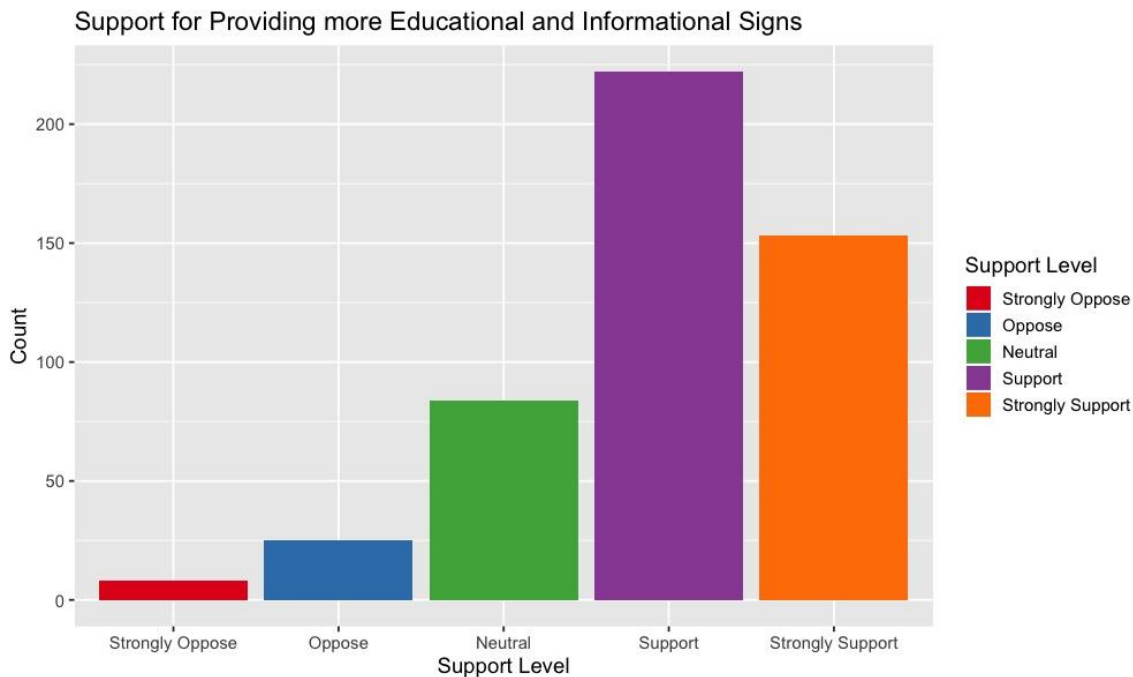
Figure 32. Support for providing educational and informational signs at the park.

Users overwhelmingly supported adding more educational and informational signage at the park, indicating that throughout the visitor population there is interest in learning more about the park while recreating (Figure 32).

While relatively few people answered in opposition to this park improvement, the median social media time for those visitors was significantly different from those who supported or were neutral to improving signage (Figure 33).
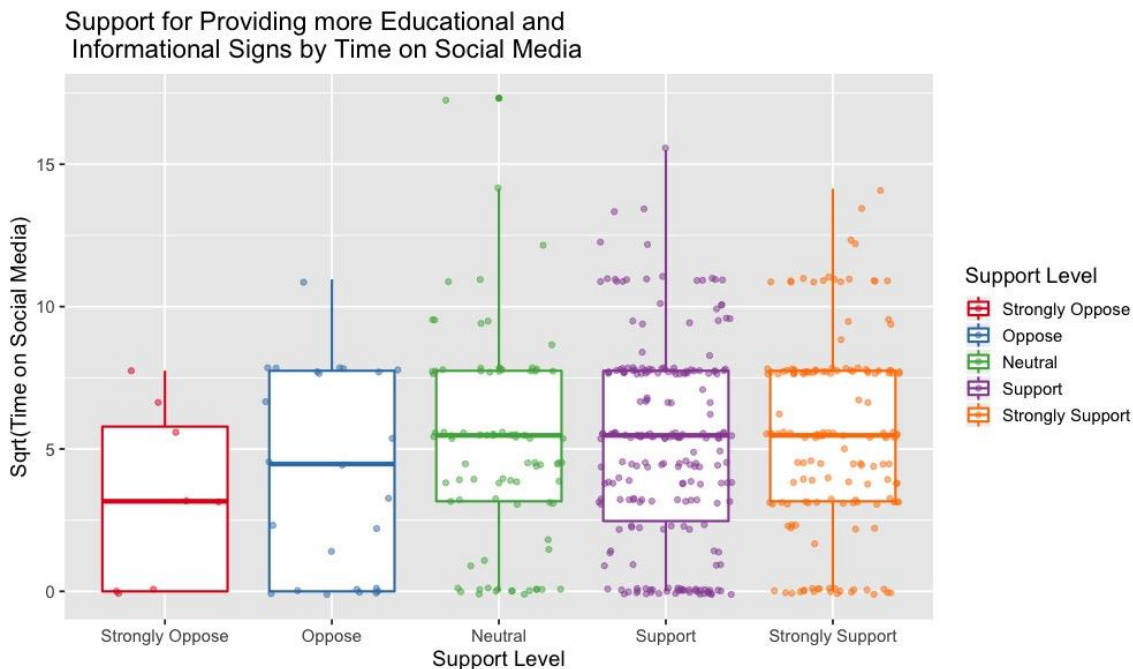
Figure 33. Support for providing educational and informational signs by time on social media.

Table 11. Regression table for support for educational and informational signs by time on social media.
Residual Deviance: 1218.599

	Value	Standard Error	T Value	Pr (>|t|)	CI 2.5%	CI 97.5%	Odds Ratio
Time	0.0486	0.02436	1.996172	4.591e-02	0.0010	0.0965	1.0498

The model for this regression shows that while there is a significant correlation the

magnitude of the significance is very small (Table 11).
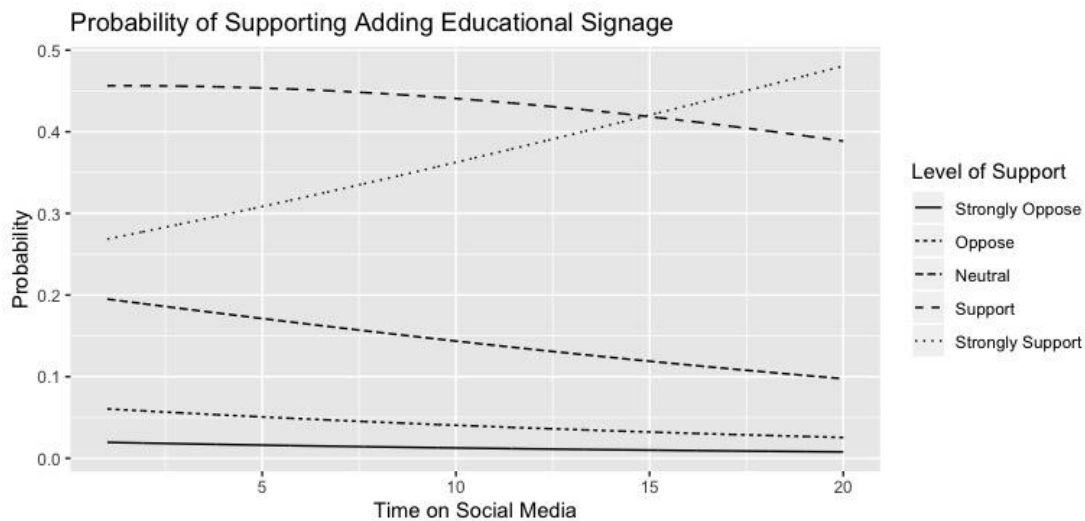
Figure 34. Predicted probabilities of support levels by time on social media. The proportion of probability clearly shifts towards the answer "strongly support" as social media engagement level increases.

In the probability model, the probability only increases for the strongly support level only, suggesting that it is much more likely that a visitor will strongly support increased signage if they spend a lot of time on social media (Figure 34).

The survey asked visitors if they supported expanding trailhead parking. A large number of visitors felt neutral about this proposal (Figure 35).
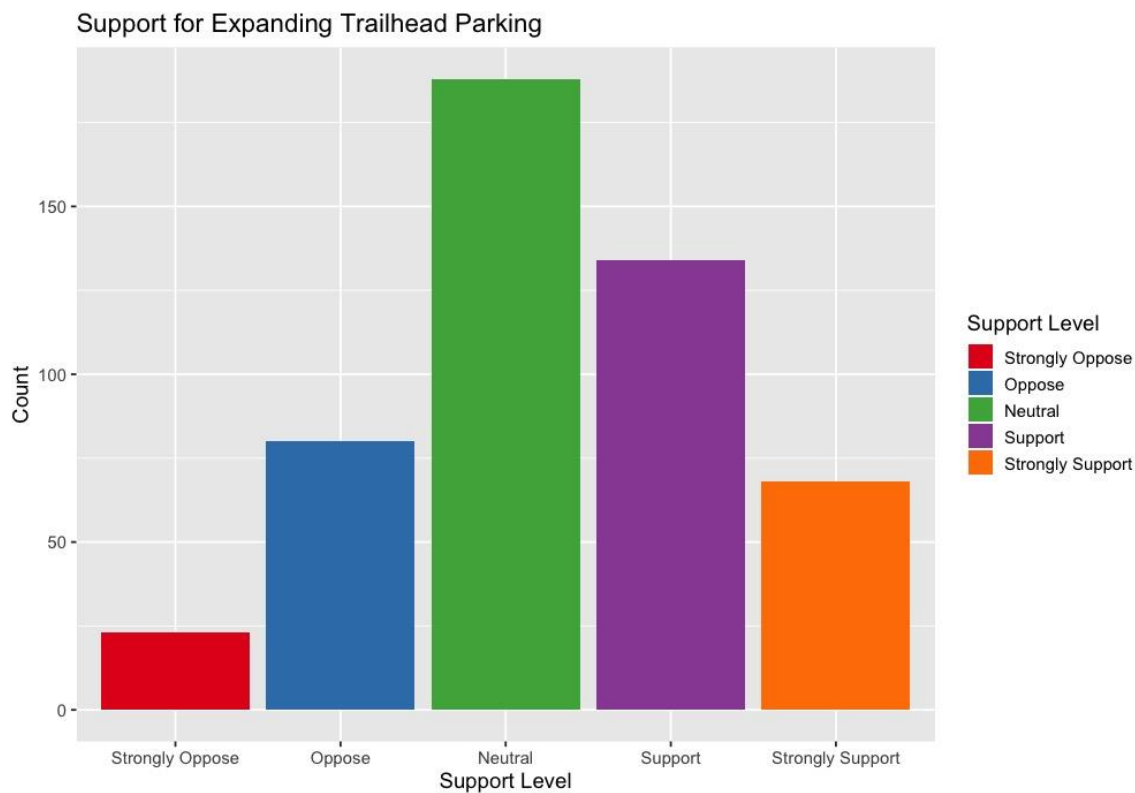
Figure 35. Numbers of visitors and their support levels for expanding trailhead parking.

When responses were analyzed by social media engagement level, engagement on social media generally increases for supportive responses and strongly oppose responses(Figure 36).
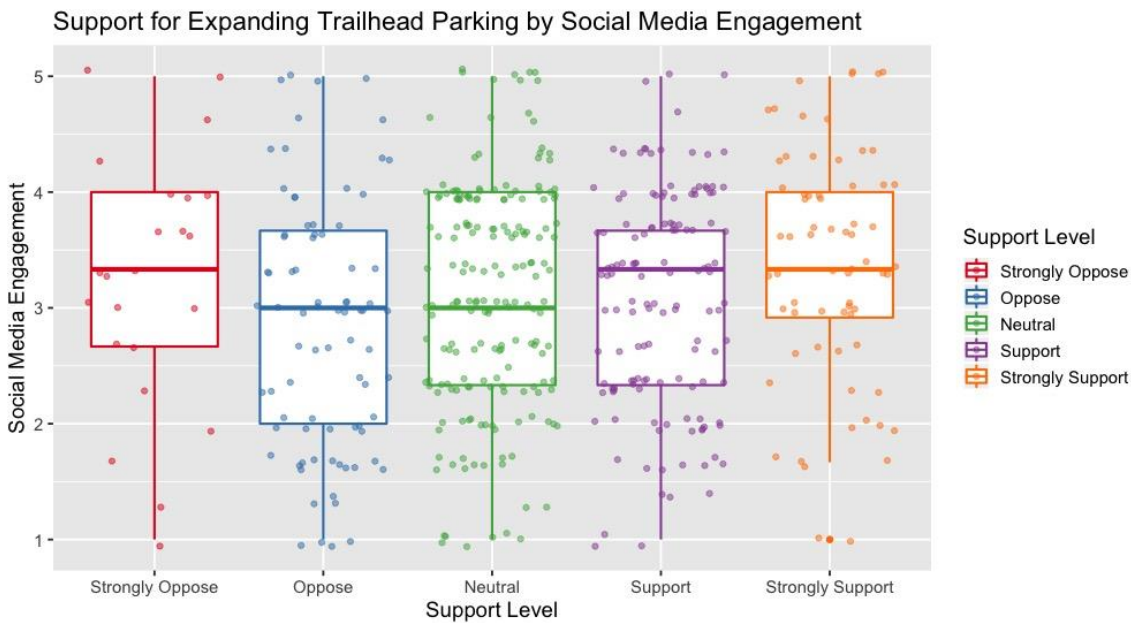
Figure 36. Boxplot showing individual answers and medians for each answer category.

Table 12. Regression for expanding trailhead parking by social media engagement.

	Value	Standard Error	T Value	Pr (>|t|)	CI 2.5%	CI 97.5%	Odds Ratio
Engagement	0.1844	0.08364	2.2046	2.747e-02	0.0207	0.3488	1.2025

Residual Deviance: 1408.09

The best model for the data shows a slight increase in odds for an increase in social

media engagement (Table 12).

Probability of Supporting Expanding Trailhead Parking
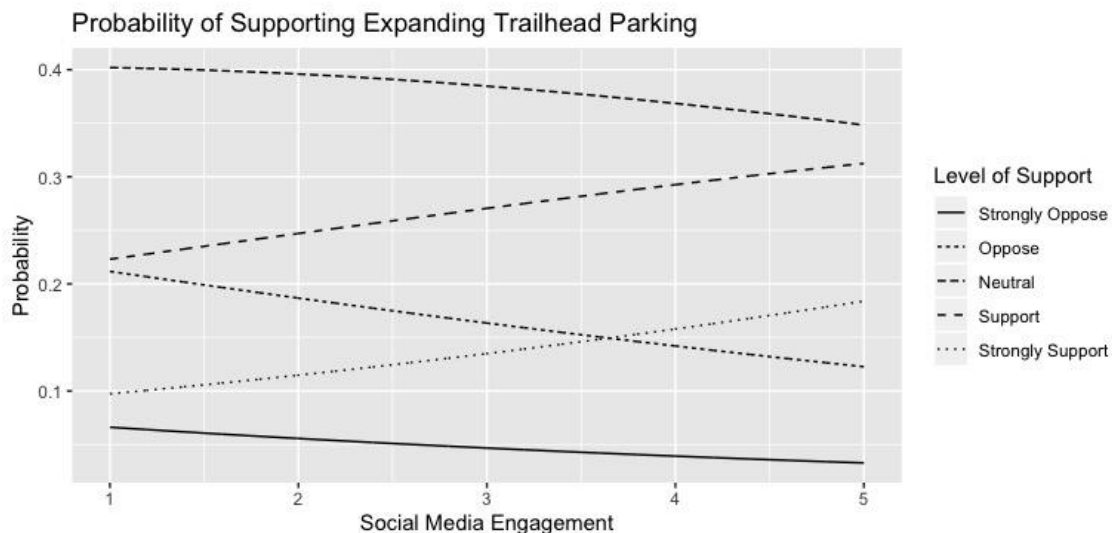
Figure 37. Probability of each support level by social media engagement. Proportion of probability shifts towards supportive levels as social media engagement increases.

The probability model shows that very similarly to expanding the trail system, the more a visitor engages on social media, the more likely a visitor is to support the expansion of trailhead parking (Figure 37).

Demographics and identity

      The survey asked respondents about their gender identity (Figure 40). When organized by social media engagement levels, female identifying individuals have a significantly higher social media engagement median (Figure 41).
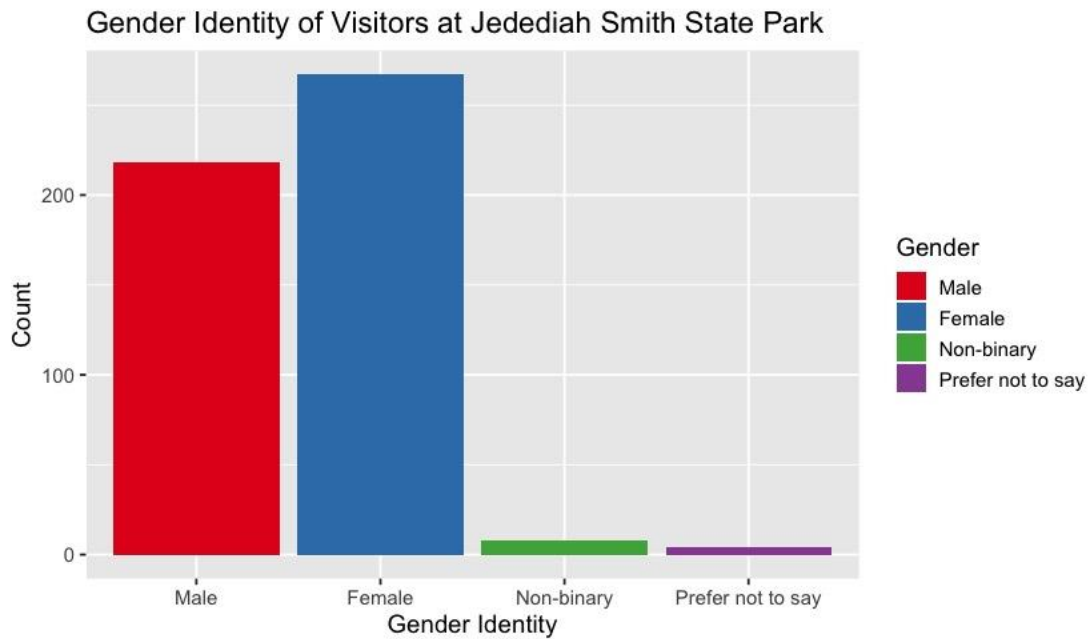
Figure 38. Number of visitors and their gender identities.
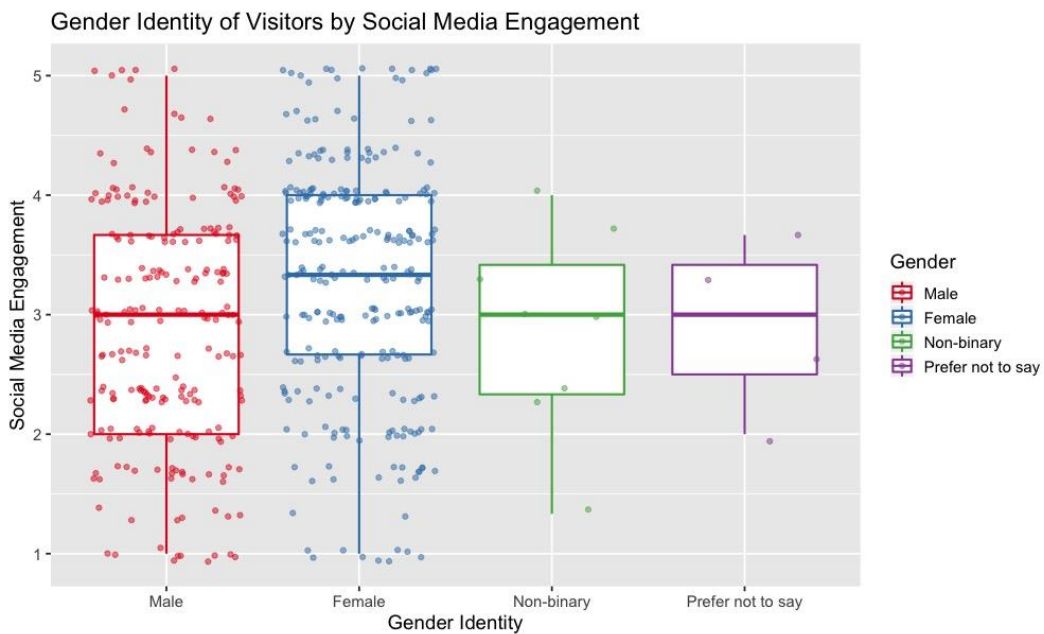
Figure 39. Boxplot of individual answer and median social media engagement level of each gender identity.

Using male gender identity as the null model, I identified regression models for each

other given gender identity (Table 14). Only identifying as female was positively

correlated with social media engagement as respondents answered "non-binary" and

"prefer not to say" in low numbers.

Table 13. Regression table for female gender identity against engagement on social
media.
Residual Deviance: 776.0121

	Coefficient	Standard Error	Z Value	Pr (>|z|)	CI 2.5%	CI 97.5%	Log Odds
Intercept	-1.0502	0.30494	-3.4440	0.0005	-1.648	-0.452	
Engagement	0.40719	0.09484	4.29351	1.758e-05	0.2213	0.5931	1.502

Probability of Gender Identity
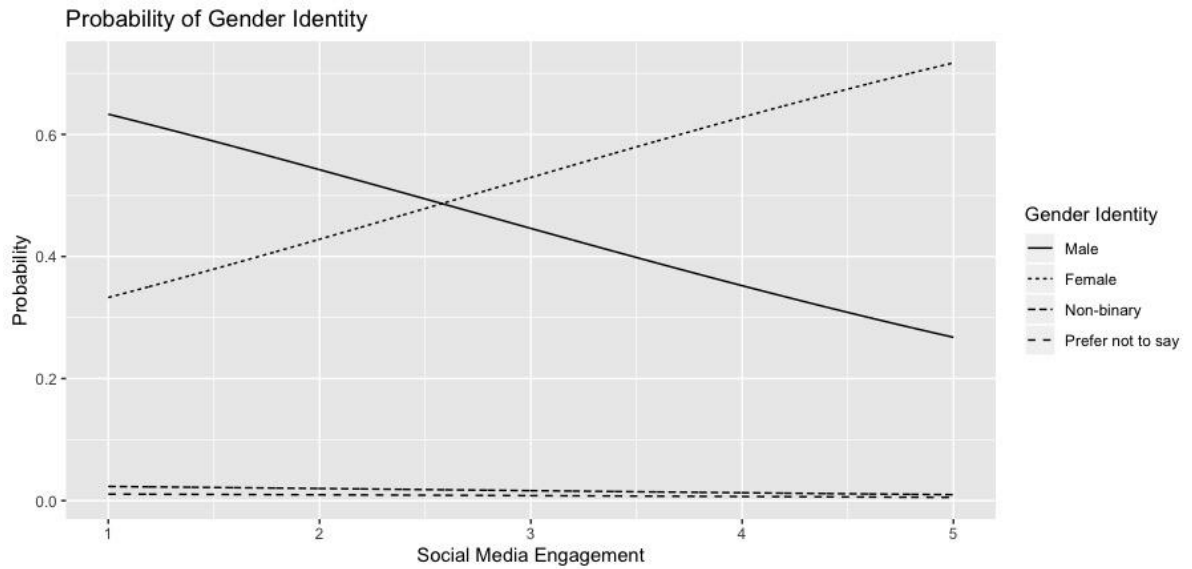
Figure 40. Predicted probability of gender identity by social media engagement. 95% confidence intervals for slope of the regression did not include zero.

In this probability model it is clear that social media engagement and female identity are correlated, as the probability of identifying female increases by more than 20 percent between the lowest social media engagement level and the highest (Figure 42).
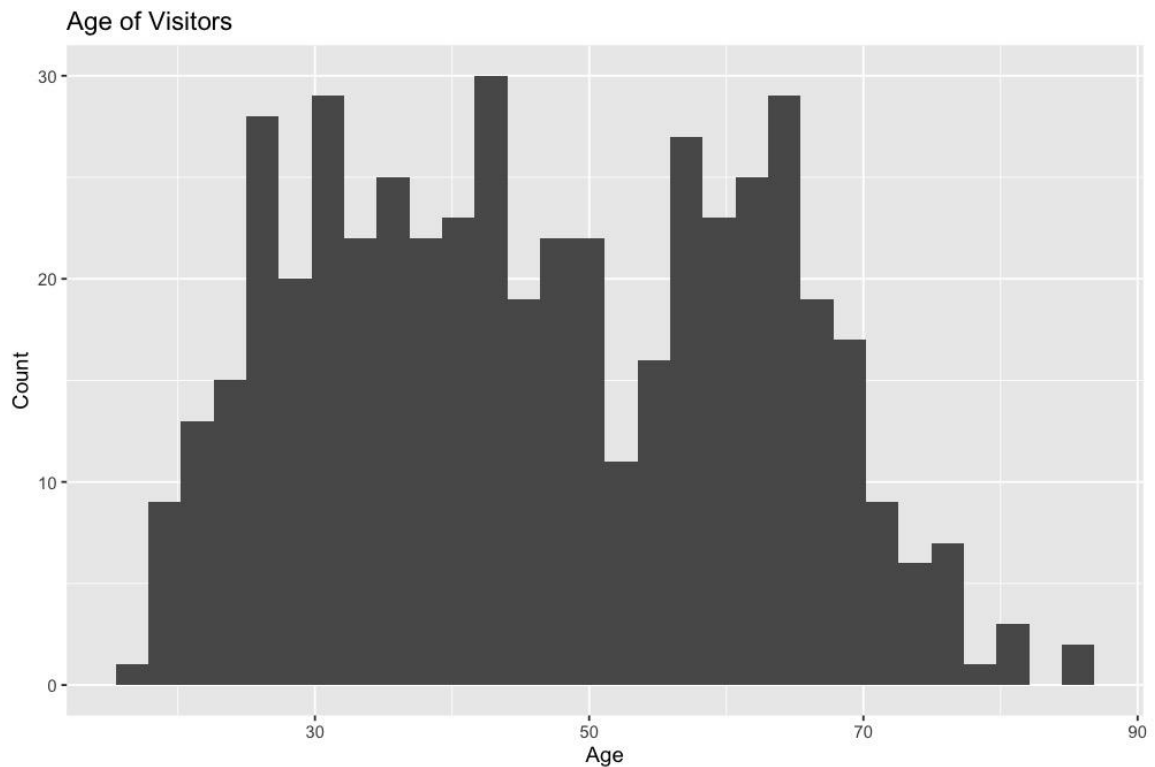
Figure 41. Ages of visitors to Jedediah Smith State Park.

Visitor age differed largely among respondents (Figure 38). Age was significantly negatively correlated with time spent on social media but was not significantly correlated with social media engagement. Respondents indicated that social media engagement does not increase or decrease with age, only the amount of time one spends on the platforms (Table 14, Figure 39).

Table 14. Regression of time spent on social media and social media engagement with survey respondent age.

	Estimate	Standard Error	T Value	Pr (>|t|)	CI 2.5%	CI 97.5%
Intercept	56.2332	2.2142	25.396	< 2e-16	51.882	60.584
Time	-1.1349	0.2383	-4.763	2.51e-06	-1.603	-0.666
Engagement	-1.2756	0.8268	-1.543	0.124	-2.9001	0.3489

Residual Standard Error: 15.06 on 492 df
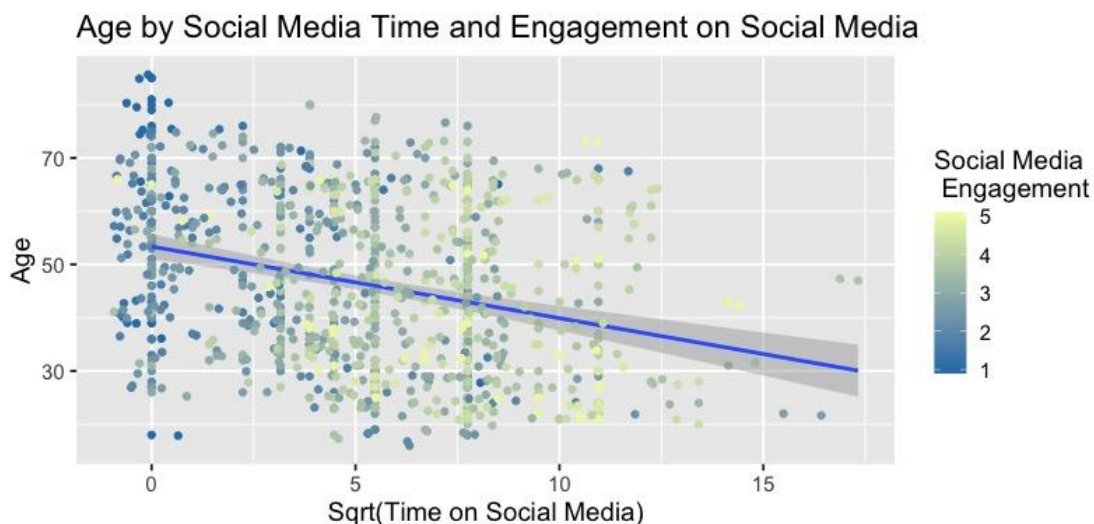
Figure 42. Visualization of regression of respondent age against Time on social media and engagement on social media.

Grove of Titans

Some questions on the survey were particularly focused on visitation to Grove of Titans. When asked whether they planned to visit Grove of Titans, social media engagement was positively correlated with answering affirmative (Table 17, Figure 43).

Table 15. Intent to visit Grove of Titans.

	Estimate	Standard Error	Z Value	Pr (>|t|)	CI 2.5%	CI 97.5%	Odds Ratio
Intercept	-2.4387	0.409	-5.962	2.49e-09	-3.268	-1.661	
Engagement	0.3087	0.1195	2.584	0.00977	0.0775	0.5468	1.361

Residual Deviance: 469.73 on 489 df

As social media engagement increases by one unit, the odds of the visitor going to Grove of Titans increases by a factor of 1.361. This predicted increase is visualized in Figure 44.
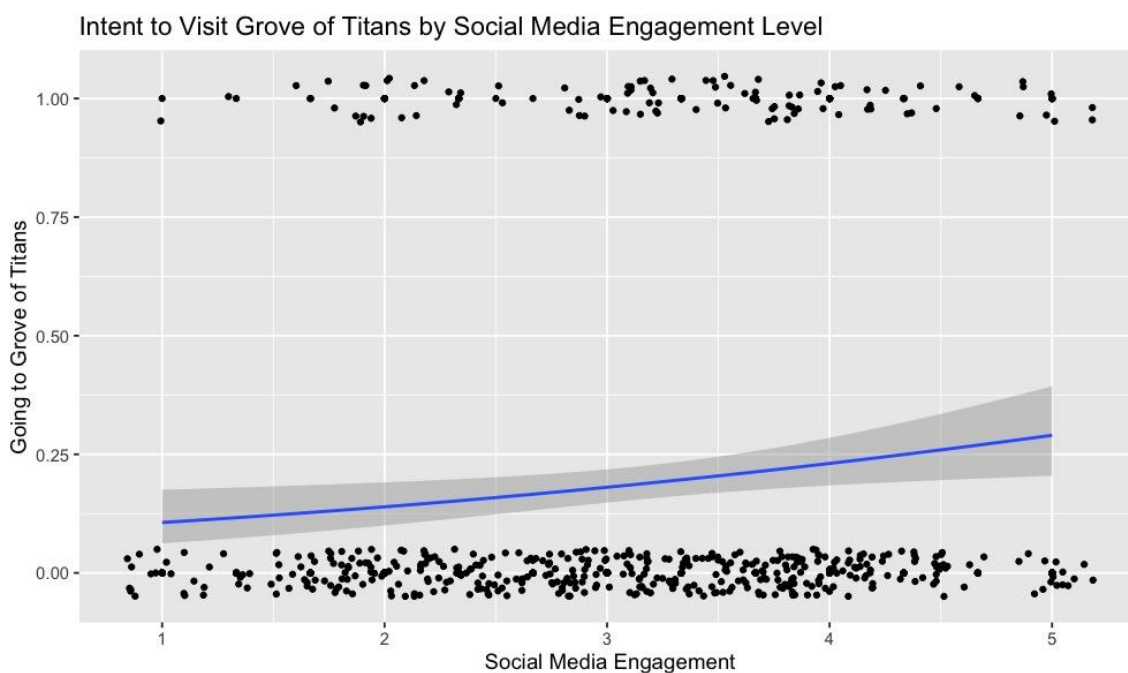
Figure 43. Intent to visit Grove of Titans increases with social media engagement.
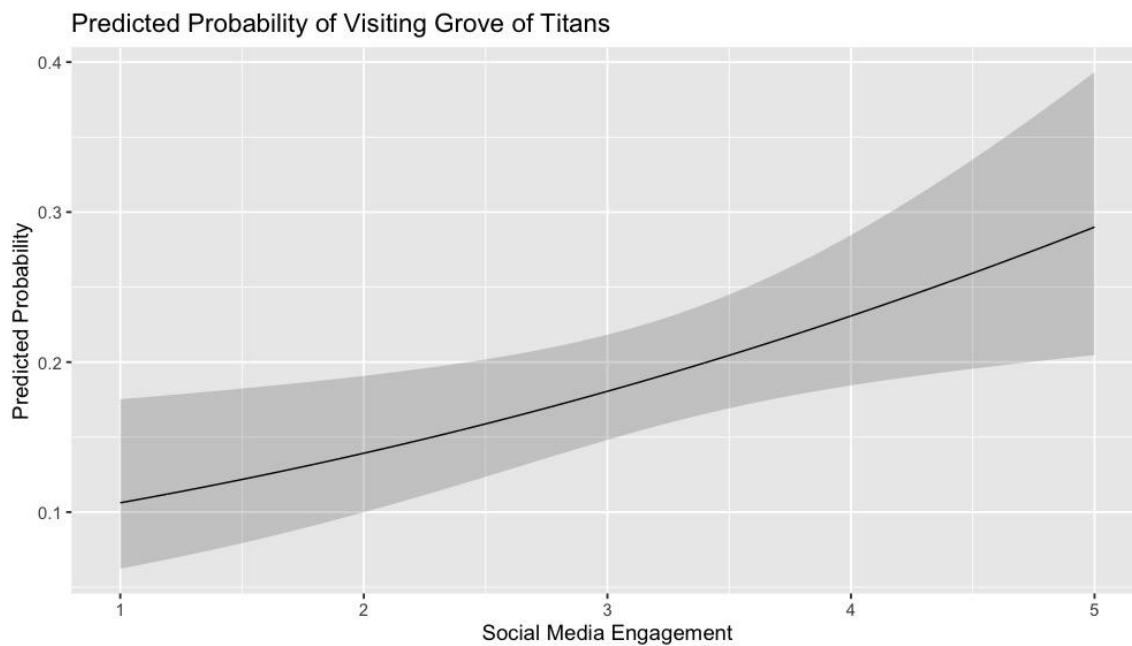
Figure 44. Predicted probability of visiting Grove of Titans increases with social media engagement.

The survey also asked the visitors who planned on visiting Grove of Titans how they originally found out about the grove. The majority of visitors cited friends or relatives. VGI related sources were cited less frequently (Figure 45).
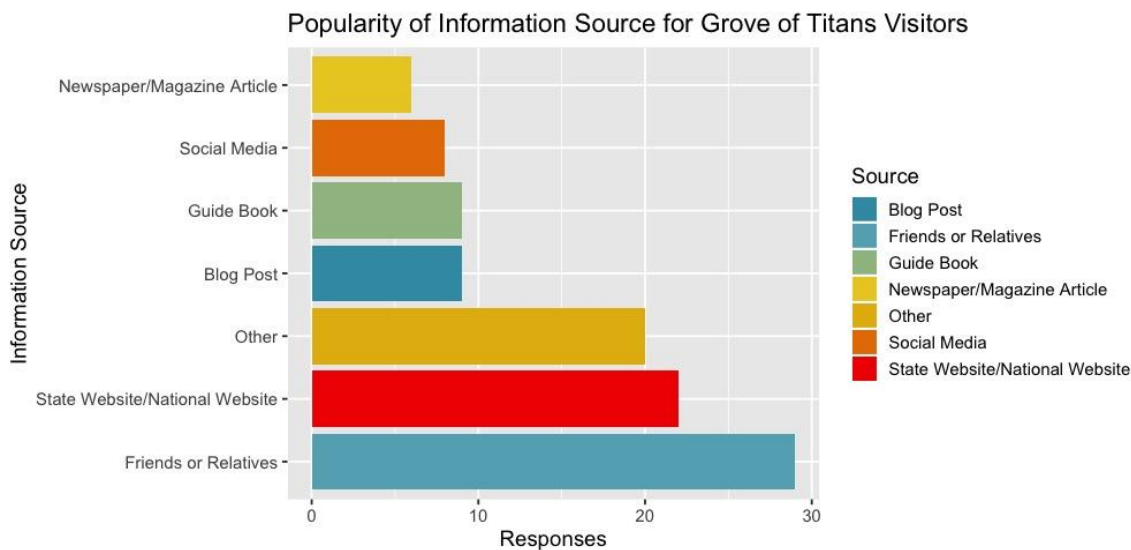
Figure 45. Popularity of discovery source for Grove of Titans information.

No single source popularity was significantly correlated with social media time or engagement, indicating that social media use does not make a visitor more likely to find out about secret locations through a certain source.

Table 16. Total results by dependent variable or question with correlation and notes on correlation.

Dependent Variable	Correlation	Independent Variable	Notes
How long do you plan to spend in this area during your trip?	None		
Is this your first time visiting Jedediah Smith State Park?	Association	Information Source, social media and blog post	Positive with first timers, negative with returners

Dependent Variable	Correlation	Independent Variable	Notes
In what ways did you originally find out about the park?	Positive	Engagement and time	Social media and blog post sources only
Was this source helpful in preparing you for your trip to Jedediah Smith State Park?	None		
Did you come to visit Grove of Titans?	Positive	Engagement	
How did you hear about Grove of Titans?	None		
Which activities have you participated in or plan to participate in at Jedediah Smith State Park during your visit?	Positive, Negative	Positive with Engagement for all activities in notes, negative with time for hiking only	Hiking, photography, picnicking, total activities only
Did you use any trails on your trip today?	None		
Which trails did you use today?	None		
Did you go to the visitor center today?	None		
Support for expanding the trail system.	Positive	Engagement	
Support for expanding trailhead parking.	Positive	Engagement	
Support for adding bathrooms at trailheads.	None		

Dependent Variable	Correlation	Independent Variable	Notes
Support providing more educational signs about plants, animals, and cultural importance.	Positive	Time	
Support for expanding ranger-led educational programs.	None		
If you visited Grove of Titans today, do you support building walkways around the trees at Grove of Titans?	None		
Would you take a shuttle that made regular stops throughout the park to avoid traffic?	None		
Would you be willing to pay a fee to take a shuttle?	Positive	Engagement	
What is the maximum amount of money you'd be willing to pay to take a shuttle?	None		
Would you be willing to pay a fee to enter Jedediah Smith State Park in your private vehicle?	None		
What is the maximum amount of money you'd be willing to pay to enter the park in your vehicle?	None		
What is your age?	Negative	Time	

Dependent Variable	Correlation	Independent Variable	Notes
What is your gender identity?	Positive	Engagement	Female only
Are you of Hispanic, Latino, or of Spanish origin?	None		
How would you describe yourself? (Ethnicity)	None		
Approximately how many times do you visit State or National Parks per year?	None		
How often do you walk off trail?	None		
I spend a lot of time in natural settings.	None		
Engaging in pro-environmental behavior is important to me.	None		
I think of myself as a part of nature, not separate from it.	None		
I follow "leave no trace" policies.	None		
I carry out everything that that I carry into a recreation space.	None		
I think about how my behavior affects the environment.	None		
I feel comfortable in the outdoors and doing outdoor activities.	None		

Dependent Variable	Correlation	Independent Variable	Notes
I enjoy places with well-developed trails and facilities.	None		
Natural setting should feel undisturbed.	None		

DISCUSSION

Introduction

This research is a preliminary analysis on the claims surrounding social media for outdoor recreation purposes and the effects it may have on visitor behaviors, attitudes, and identities. The promotion of outdoor places on social media use has been linked in popular media to issues of overcrowding and destructive behavior. Social media may also disrupt some of the exclusionary aspects of outdoor recreation culture. In this section, I use cultural capital as a framework to compare my discourse analysis findings with my survey results and establish whether and how popular claims about social media use in the outdoors is reflected in the responses of visitors to Jedediah Smith State Park.

Often, media discourse on both sides of this debate refer to social media users as a category of recreationist, focusing on population groups rather than the use of social media as a tool. By claiming that social media users are different from other visitors and therefore typing them as "social media recreationists," writers are accentuating perceived differences between different user populations. While categorizing users has been an effective method of research in the recreation field (Manning 1999), researchers must also understand the context and effects of such categorization. Categorization can lead to the stereotyping that excludes people (Sibley 1995). Even some of the articles in the media discourse point to the categorization and stereotyping of social media users. Gregory's article "Stop Blaming Instagram for Ruining the Outdoors" (2019) points to

the issues of pinning generalizations on people who use social media. In the survey analysis, a majority of respondents were social media users in some form, though their social media patterns differed. Some respondents used social media very little and hardly engaged with posts about outdoor recreation opportunities, some optimized their use of social media by engaging at a high level in the little time they spent online. Others spent a lot of time on social media but did not engage with outdoor recreation focused posts, while some indicated that they both spent a lot of time on social media and heavily engaged with outdoor recreation posts. Claims about what Nosowitz (2015) calls "social media hikers" are hard to prove when almost everyone uses social media on some level and interacts with such platforms differently.

While there are some differences in attitude and behavior depending on levels of social media use, overall, visitors across all social media use levels still showed a strong (self-reported) sense of environmental ethics and rules. In outdoor culture, guidelines like Leave No Trace are highly regarded as the acceptable standard of behavior, and the respondents' understanding of such rules no matter their social media use level indicates that these rules are disseminated widely, and that people are still expected to conform to them. This finding supports Beedie's 2013 argument that rules like Leave No Trace become social norms. Claims that connect social media use to a decay of these ethics must then be examined, as documented instances of misbehavior are often connected to overcrowding and popularity of certain areas often caused by social media sharing, but are not directly connected to the use of social media itself.

In the following sections, I will explore both the disparate and common themes amongst the media discourse on social media use in the outdoors, connect some of these themes to survey results, and outline some key points that managers and researchers can continue to study.

Two Media Discourses Surrounding Outdoor Social Media Use

In my analysis of the discourse surrounding social media use in the outdoors, it is clear that most writers are either proponents or critics, although critical stances were much more common out of the thirty articles I sampled. In this section I will outline the rhetoric of both stances and compare and contrast both stances.

The first argument, that of proponents, champions social media use in the outdoors as a tool that connects recreationists to information and to each other. Proponents focus on evidence that marginalized groups do not feel welcome in the outdoor community, and that this feeling stems from not fitting in with the cultural norms in such a community. As in the Johnson, Bowker, English and Worthen (1997) study, information about recreation opportunities do not reach some communities; writers in support of social media use argue creating and using new sources created by friends and allies may provide opportunities to learn about new outdoor recreation spaces and to begin to feel comfortable in such experiences. Language of inclusion and diversity are common in these articles. Out of the thirty articles in my sample, eight used this type of rhetoric.

The second type of argument I identified in the discourse largely focuses on how social media use encourages people to visit outdoor places, causing the degradation of sensitive environments. These writers echo the sentiments of traditional recreation researchers (Wagar 1964) by framing their arguments about overcrowding concerns. Critics of social media use in the outdoors typically center on the idea that there is not enough good information on these social media sources and the sharing features on the platforms only perpetuates that issue. In these narratives focus is placed on online policing through citizen-led online watch-group efforts and putting new limits on the spread of information through anti-geotagging campaigns. I found this rhetoric in 14 of the articles in the sample.

In many of these articles, writers acknowledge that social media is how modern humans receive and spread information. There is a common understanding on both sides of the discourse that social media is an important tool to disseminate information, demonstrating that it is not social media itself that is an issue, but the content of posts that might mediate future visitor experience.

Proponents of social media use encourage the use of different VGI sharing platforms as a space to break down barriers to participation in recreation. Writers specifically focus on the ability of social media to facilitate new community spaces to connect, share, and absorb need-specific information. The transformation and dissemination of this recreation information, as is the focus Krueger's 2019 article about creating relevant content for differently-abled groups, is an example of Hay's (1994) discussion on transformative agency, which facilitates the creation of cultural capital. In

Krueger's article, social media users participate in the outdoors by creating their own resources, tailored for their needs. This is an example of Beedie's 2013 theory on how resources affect participation in outdoor communities.

Critical sources search for ways to vet and limit the flows of information on these platforms, essentially making sure that information sharing is limited and accurate. These methods are common in established recreation research, as Walker and Virden (2005) discuss, but have also caused structural constraints in underserved communities. Anti-geotagging campaigns like #keepjacksonholewild focus on stopping the spread of information and accounts like @publiclandshateyou dissuade behavior by making an example of those who violate rules, but it is likely that their message is only shared amongst people who are already a part of the dominant outdoor culture. Anti-geotagging campaigns target recreationists who already have the knowledge of a space to keep it secret, and policing-type social media accounts are often antagonized in pro-social media writing as just another gatekeeping measure. While both sides of the debate understand the importance of using social media as a tool, they differ on how such a tool is used and target different users in their strategies.

Does Social Media Use Correlate with Historically Underserved Identities?

A key point made by proponents of social media use in outdoor recreation settings is that social media is used by historically underserved communities. Because recreation management decisions do not affect different communities the same way (Johnson, Bowker, English, & Worthen 1997, Roberts & Chiterwere 2011), writers are interested in

who might be using social media as a tool for recreation information. The results of the Jedediah Smith State Park visitor survey may give us insight into some of these claims.

In the survey results, higher social media use positively correlated with younger populations as well as identifying as female. Younger populations who have grown up with quickly developing social technology may be used to using social media for many purposes and are likely to find information online as a norm. In the discourse analysis, writers like William Shannon (2018), allude to the connection between social media use, youth, and inexperience. As younger generations have not had as much time to build outdoor knowledge as older individuals and may not have the guidance of elders, social media offers an outlet for easily accessible information on where to go and what to do in recreation spaces. Women have historically been marginalized in outdoor spaces, and as some writers in the discourse analysis noted, social media platforms like Instagram and Facebook can be spaces of inspiration for women who are not comfortable in traditionally masculine outdoor spaces. Female majority sharing communities may be redefining what outdoor recreation looks like in their own spaces, echoing the claims about the creation of agency through alternative resources in Shinew and Floyd's (2005) work. The survey was not able to discern a correlation with ethnicity and social media use because ethnic diversity amongst respondents was too low for analysis. A larger survey of visitors across different parks might allow recreation researchers to explore this question with a larger and more diverse sample size, allowing for more conclusive results about wider populations than in this case study.

Social Media Use and its Effect on Constraints of Confidence

Another common claim from proponents of social media use is that social media may be bringing people to parks who feel less comfortable in outdoor recreation spaces. As Roberts and Chitewere (2011) outline, not having the knowledge of a recreation opportunity can have great effect on a person's feeling of belonging. This discomfort can limit visitation or keep visitors from participating in certain activities. In the discourse, writers like Victoria Sambursky (2018) and Alyson Krueger (2019) discuss how social media might elevate confidence in the outdoors, especially in the creation of specialized communities who take part in Shinew and Floyd's (2005) theory of "participation in parallel." At Jedediah Smith State Park, there was no correlation between social media use levels and agreeing with the statement "I feel comfortable in the outdoors and doing outdoor activities." The responses to this question did not significantly differ by social media use level, and further analysis into information source and comfort in the outdoors similarly showed no correlation. Visitors who use social media for recreation purposes therefore claim to be similarly comfortable in the outdoors as non or low social media users. In future studies, it may be useful to test whether comfort level increases or decreases with social media use, as this study only tests if comfort differs by social media use levels but does not explore if social media might cause a user to feel more comfortable.

I found that using social media and blog posts as a source of information about Jedediah Smith State Park was associated with being a new visitor to the park. The

inverse was true of returning visitors, who had a strong disassociation with using VGI

sources. This result reveals that social media sharing and VGI is indeed attracting new

groups to the park. This is reflected on both sides of media discourse, as all discourse is

focused on the attraction of new visitors to parks. Questions of experience are tied to this

claim, as writers like Wastradowski (2019) attribute bad behavior at parks to new,

unexperienced, and unprepared visitors. Roberts and Chitewere's work similarly shows

that the more connection one has to a space, the more likely they are to feel responsibility

for it. In the case of visitor preparedness at Jedediah Smith State Park, there was no

correlation between perceived preparedness and social media use, and a majority of

visitors across all social media use levels claimed to follow Leave no Trace rules,

indicating that all visitors felt just as prepared to recreate regardless of social media use

level. With this information, park managers might be interested in expanding their social

media presence to provide information to these new visitors.

Does Social Media Use Facilitate Different Outdoor Recreation Behavior?

The discourse analysis revealed claims that social media users engage in

traditional recreation behavior less or differently than others. Nosowitz (2015) calls social

media users a "lazy fandom" and other writers claim that visitors who use social media

are only there to recreate an image they saw online. In the survey, social media

engagement actually positively correlated with the number of activities a participant

planned on participating in. Arguments about the lack of engagement among visitor

populations have been historically used to legitimize the exclusion of such users in the

outdoor community (Kosek 2004). Even though this rhetoric is used in critical discourse about social media use and its effects on visitors, this claim was not substantiated at Jedediah Smith State Park, and users with high social media levels actually tend to participate in more activities than users with low social media levels.

In particular, social media engagement was positively correlated to interest in hiking, picnicking and photography. This indicates that social media use may increase engagement in different activities opportunities at the park, and managers may be interested in providing more guidance on these activities specifically through social media sharing. Picnicking in particular was unpopular across survey participants, but more popular among users with higher social media engagement. It might also be beneficial to provide more opportunities and information about specific, less popular activities, as some activity interests may differ.

Social media engagement correlated positively with interest in hiking at Jedediah Smith State Park. Hiking was the most popular activity amongst respondents, but this correlation does support some other attitudes linked to social media engagement in particular. Social media engagement was also correlated with support for expanding the trail system, indicating that high levels of social media use may correlate with interest in more opportunities to hike in the park. Interestingly, expanding trail systems may also rectify over-crowding issues attributed to social media recreationists in the discourse, as visitor populations will be dispersed among different trails with different attractions, instead of visiting the same three popular trails that are often recommended at the visitor center. This idea of dispersal is a strategy suggested in traditional recreation research and

support for the proposal may prove an effective way to achieve a balance between providing quality recreation experiences and the conserving unique or fragile ecosystems.

Social media engagement positively correlated with interest in participating in photography at the park. This does bolster claims that high levels of social media use lead to visitors trying to capture the same picture they saw online. In future studies, it would be useful to analyze if trying to recreate social media posts visitors have seen is a motivator in choosing recreation destinations, and if this creates increased visitor traffic at certain vistas.

Further, it is important to note that social media use did positively correlate with intent to visit Grove of Titans. In the discourse analysis, many writers cited social media's ability to popularize places that were once considered "hidden secrets" through the sharing of photography. These spaces often do not have the infrastructure to accommodate crowds. Writers believe that visitors are interested in capturing a photo of their own of these hidden places, leading to overcrowding. If managers do not provide the infrastructure for these crowds, some fragile ecosystems will be destroyed. However, if they do make accommodations, they also risk changing the "untouched" nature of these spaces. Recreation researchers have traditionally favored keeping infrastructure minimal to provide this undisturbed experience, but crowding may be forcing this to change.

This study is largely about how the flow of recreation information is evolving, and how historically, the outdoor community has ignored the demand for information from communities who do not possess the cultural capital to easily obtain that knowledge. In the survey results, all visitors expressed interest in more information about

their experience. This is important to note because it shows that on the whole, all visitors are curious to learn more about the parks they visit. It also shows that using social media does not make a person content with incomplete or superficial levels of information. Social media use was not correlated negatively or positively with stopping at the visitor center, indicating that respondents across social media use levels were interested in obtaining more information about their trip and obtaining it through what is culturally believed to be a proper channel of information. In this case, engaging with recreation information on social media does not make you less likely to pursue other channels of information gathering, countering the idea that social media use makes visitors lazy (Nosowitz 2015).

Interest in increased informational and educational signage in the park was one of the most popular items suggested for implementation across social media use levels. This indicates that visitors are interested in engaging with information about the park while they are participating in activities for a more rounded experience. Roberts and Chitewere (2011) allude to how information about recreation spaces creates connection and a feeling of responsibility for parks. Proponents of social media use in the discourse echo this sentiment, claiming that providing information and education creates environmental advocates. By providing more informational materials in the park, managers might provide more opportunities for visitor connection. Further, Flores and Kuhn (2018) discuss how narratives are important to connection, and in-park information that extends beyond what to do and where to go might facilitate personal bonds with outdoor spaces.

This finding is interesting, as low development models of park management favor less signage for a more undisturbed experience. Information then is often consumed by visitors before they enter the park and offers less in-the-moment connections with the space. Social media and the digital dissemination of information actually has the potential to fulfill such an interest, by offering visitors an easily transportable and possibly interactive guide on their own personal device. The implementation of this sort of device based educational program might be interesting to study as more and more information becomes attainable by handheld devices.

Discussion of Limitations

This study was limited in several regards; however, I believe that some of the following limitations provide inspiration for continued research to explore the subject further.

First, Jedediah Smith Park is larger than the confines of Howland Hill Road. However, the number of surveyors administrators available in this study did not allow us to cover any trail systems off of this main road, and as the traffic congestion and condition of Howland Hill road was important to the results of the larger survey for California State Parks and Save the Redwoods League, this study was only focused on the popular trails in this section of the park.

Second, self-reported answers might not be accurate or indicative of the actual behaviors, identities, and attitudes of a visiting group. While all questions were designed

to sound neutral, it is naturally harder to get accurate information about illegal or culturally disapproved activities such as walking off trail or littering. Future studies may use a combination of observational data collection and survey data collection. This may be done through monitoring visitor behavior on the trail or asking participants to use GPS devices during activities, as is done for larger scale visitor flow studies.

Additionally, in an attempt to keep information about Grove of Titans protected, we were not able to gauge accurately how many people actually intended to go to the grove. During some in-person surveys, visitors asked the survey administrator whether Stout Grove and Grove of Titans were the same place. While surveyors could inform visitors of the difference between the groves during in-person surveys, there was no way to mitigate the effect of this misidentification on mail-in surveys without directly giving away the location of the protected area on a map. In future studies of similarly protected areas, the implementation of observational data at the site paired with a survey might provide more accurate information.

Third, case studies such as this are not largely applicable to or predictive of larger trends in outdoor culture. This study is meant to be a preliminary analysis aimed at identifying aspects of social media's effect on visitor experience, but these results do not necessarily apply to all recreation situations. Once again, larger, broader-scale surveying, across a variety of different recreation spaces may reveal different results.

CONCLUSION

Social media has become so ingrained in our culture in the last ten years, that it is no surprise it is changing the ways we share and consume information. As fast as technology develops, there is no doubt that there is a cultural tension about the magnitude of effects of social media in our behaviors, attitudes, and activities. This study aims to provide preliminary analysis on the discussion around social media in the outdoors as well as its actual effects on recreation. I sought to place the tension surrounding social media in the proper historical context in order to fully understand how discourse and survey data interact. When we observe the results of this study, we see that, despite claims about "social media recreationists" in the discourse, users are not easily stereotyped. While high social media users at Jedediah Smith State Park trended younger and female, many visitors indicated some use of social media and reported different use patterns. Because of these findings, I stress the importance of understanding the effects of social media as a tool rather than attempting to categorize visitors as "social media hikers" with a set of stereotypes attached to such a label. Higher levels of social media use more does correlate with the likelihood of a visitor more finding out about recreation opportunities from social media, but social media itself is still not the highest driver of visitors to Jedediah Smith State Park, again contesting a claim that has been made about social media's use in the outdoors. However, new visitors are more likely to use social media and other VGI sources as an information source about the park, which means that social media is drawing new groups to Jedediah Smith State Park.

Following the claims made about social media use for outdoor recreation, the survey at Jedediah Smith State Park showed that increased social media engagement correlated with increased engagement in park activities, and that high social media use did not correlate with low environmental awareness levels. Furthermore, visitors across social media use levels were similarly interested in obtaining more information about the park during their visit, revealing a need for more interpretive information in real time.

As social media evolves and transforms the way we gather information about public lands, it becomes increasingly important to understand if these changes mitigate the ways we use and value such lands. This study on social media as a tool for outdoor recreation is meant to be a first step in the research that creates equitable, inclusive, and sustainable recreation opportunities for all visitors.

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APPENDICES

Appendix A`

<u>In-person survey consent information form</u>

Project Title: Jedediah Smith State Park Visitor Survey

Dear Participant:

Researchers at Humboldt State University, Save the Redwoods League, and California State Parks are conducting research to better understand visitation at Jedediah Smith State Park. You have been selected to participate in this survey, and your participation will greatly help us with this research project. This survey is funded by Save the Redwoods League and administered through Humboldt State University.

It is important that your opinion is heard; however, participation in this study is **entirely voluntary** and you may decline or withdraw at any time during the completion of the survey without jeopardy. Your response will be kept **confidential**, and combined with those of other survey respondents for analysis and reporting. All responses will be securely stored. There are no immediate benefits or foreseeable risks to participating. If you have any concerns with this study or questions about your rights as a participant, contact the Institutional Review Board for the Protection of Human Subjects at irb@humboldt.edu or (707) 826-5165.

Thank you for taking the time to complete the survey. The data collected will provide invaluable information regarding visitation trends and opinions.

Erin Kelly, PhD
Associate Professor
Humboldt State University
Dept. of Forestry
Phone: (707) 826-4150
Email: eck107@humboldt.edu

Theodora Doyon
Graduate Student
Humboldt State University
Environment and Community Program
Phone: (203) 819-2648
Email: tmd22@humboldt.edu

Mail-in survey consent information form

Project Title: Jedediah Smith State Park Visitor Survey

Dear Participant:

Researchers at Humboldt State University, Save the Redwoods League, and California State Parks are conducting research to better understand visitation at Jedediah Smith State Park. You have been selected to participate in this survey, and your participation will greatly help us with this research project. This survey is funded by Save the Redwoods League and administered through Humboldt State University.

Enclosed you will find a questionnaire booklet and a pre-paid envelope for returning it. The survey should take between 10-15 minutes to complete. Please return the completed survey by August 10, 2019.

It is important that your opinion is heard; however, participation in this study is **entirely voluntary** and you may decline or withdraw at any time during the completion of the survey without jeopardy. Your response will be kept **confidential**, and combined with those of other survey respondents for analysis and reporting. All responses will be securely stored. There are no immediate benefits or foreseeable risks to participating. If you have any concerns with this study or questions about your rights as a participant, contact the Institutional Review Board for the Protection of Human Subjects at irb@humboldt.edu or (707) 826-5165.

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Associate Professor
Humboldt State University
Dept. of Forestry
Phone: (707) 826-4150
Email: eck107@humboldt.edu

Theodora Doyon
Graduate Student
Humboldt State University
Environment and Community Program
Phone: (203) 819-2648
Email: tmd22@humboldt.edu

Mail-in survey with questions highlighted

Jedediah Smith State Park Visitor Survey

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It is important that your opinion is heard; however, participation in this study is **entirely voluntary** and you may decline or withdraw at any time during the completion of the survey without jeopardy. Your response **will be kept confidntial** . No personal information will be recorded, andsall responses will be securely stored. There are not immediate benefit or foreseeable risks to participating.

Please indicate that you are aware of the research process and your rights as a participant:

☐ By checking this box, I consent to the research process described in the paragraph above.

General Information

1. **How many people are in your party today?**

   _____

2. **Do you live in the United States?**
   Mark only one oval

   ◯ Yes

   ↳ **If yes, in what zip code do you live?**

   _____

   ◯ No

   ↳ **If no, in which country do you reside?**

   _____

3. **How long do you plan to spend in this area during your trip?**

   _____

4. **Is this your first time visiting Jedediah Smith State Park?**
   Mark only one oval

   ◯ Yes

   ◯ No

   ↳ **If no, how many times have you visited?**

   _____

Survey continues on next page

5. **Area managers would like to know how people learn about Jedediah Smith State park to improve outreach programs. In what ways did you originally find out about the park?**
Check all that apply.

☐ Friends and Relatives

☐ Newspaper/Magazine Article

☐ Blog Post

☐ State Website/National Website

☐ Social Media (i.e. Facebook, Instagram, Twitter, Pinterest)

☐ Guide Book

☐ Other: _____

6. **What source did you rely on the most for information about the park?**

_____

7. **Was this source helpful in preparing you for your trip to Jedediah Smith State Park?**
Mark only one oval

◯ Yes

◯ No

◯ Neutral

8. **What places in the park did you or do you intend on visiting today?**

_____

_____

9. **Did you come to visit Grove of Titans?**
Mark only one oval

◯ Yes

⤷ **If yes, how did you hear about Grove of Titans?**

◯ Friends and Relatives

◯ Newspaper/Magazine Article

◯ Blog Post

◯ State Website/National Website

◯ Social Media (i.e. Facebook, Instagram, Twitter, Pinterest)

◯ Guide Book

◯ Other: _____

◯ No

10. **Which activities have you participated in or plan to participate in at Jedediah Smith State Park during your visit?**
Check all that apply.

☐ Biking

☐ Boating

☐ Camping

☐ Fishing

☐ Geocaching

☐ Hiking

☐ History or cultural study

☐ Horseback riding

☐ Nature study

☐ Photography

☐ Picnicking

☐ Ranger program

☐ Swimming

☐ Wildlife viewing

Survey continues on next page

Traffic

11. **How many cars did you take to the park today?**

   _____

12. **Looking at the map provided, which roads did you drive on in the park today?**
   Check all that apply.

   ☐ Howland Hill Road

   ☐ Route 199

   ☐ Walker Road

13. **Answer yes or no to the following questions. If any questions are not applicable to your trip, please mark the option "not applicable."**

	Yes	No	Not Applicable
Did you encounter too much traffic at the park today?	◯	◯	◯
Do you think Howland Hill Road is in good condition?	◯	◯	◯
Did you feel like you had enough room to pass traffic traveling in the opposite direction?	◯	◯	◯
Did you find parking easily?	◯	◯	◯
Was the parking you found close to your intended destination?	◯	◯	◯
Did you find a bathroom if you needed one?	◯	◯	◯
Did you notice any dust on the road?	◯	◯	◯

Visitor Experience

14. **Did you use any trails on your trip today?**
Mark only one oval.

⬭ Yes

↳ **If yes, which trails did you use today?**
Check all that apply.

☐ Boyscout Trail

☐ Hatton/Hatton Loop Trail

☐ Hiouchi Trail

☐ Leiffer Loop Trail

☐ Little Bald Hills Trail

☐ Mill Creek Trail

☐ Nickerson Ranch Trail

☐ River Trail

☐ Simpson Reed Grove Trail

☐ Stout Grove Trail

⬭ No

15. **Park managers are interested in finding out what types of things influence the quality of your visit. For each item listed below, tell us if you noticed the item. If you did notice, answer whether it added or detracted from your visit.**

	Yes	No	Detracted	No Opinion	Added
Did you see other people along the trail?	⬭	⬭	⬭	⬭	⬭
Did you see other parties walking off trail?	⬭	⬭	⬭	⬭	⬭
Did you see evidence of social trails or trampled areas?	⬭	⬭	⬭	⬭	⬭
Did you see any litter?	⬭	⬭	⬭	⬭	⬭
Did you see any graffiti?	⬭	⬭	⬭	⬭	⬭
Did you see any informational or regulatory signs?	⬭	⬭	⬭	⬭	⬭
Did you see any California State Park Staff?	⬭	⬭	⬭	⬭	⬭

Survey continues on next page

16. **Did you notice anything else on the trails that was not mentioned?**

_____

_____

17. <mark>**Did you go to the visitor center today?**</mark>
   - ◯ Yes
   - ◯ No

18. **Did your trip meet your expectations?**
   - ◯ Yes
   - ◯ No

19. **Why or why not?**

_____

_____

Management Solutions

20. <mark>**On the scale below, rate your level of support for the following management solutions.**</mark>
Mark only one oval per row.

	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
Expand the trail system.	◯	◯	◯	◯	◯
Expand trailhead parking.	◯	◯	◯	◯	◯
Add bathrooms at trailheads.	◯	◯	◯	◯	◯
Provide more educational signs about plants, animals, and cultural importance.	◯	◯	◯	◯	◯
Expand ranger-led educational programs.	◯	◯	◯	◯	◯

Survey continues on next page

21. **If you visited Grove of Titans today, do you support building walkways around the trees at Grove of Titans?**
Mark only one oval.
- ◯ Yes
- ◯ No

22. **Would you take a shuttle that made regular stops throughout the park to avoid traffic?**
Mark only one oval.
- ◯ Yes
- ◯ No

23. **Would you be willing to pay a fee to take a shuttle?**
Mark only one oval.
- ◯ Yes
   ↳ **If yes, what is the maximum amount of money you'd be willing to pay to take a shuttle?**

   _____

- ◯ No

24. **Would you be willing to pay a fee to enter Jedediah Smith in your private vehicle?**
Mark only one oval.
- ◯ Yes
   ↳ **If yes, what is the maximum amount of money you'd be willing to pay to enter the park in your vehicle?**

   _____

- ◯ No

25. **Would you prefer if Howland Hill Road were a one-way road?**
Mark only one oval.

- ⬭ Yes
- ⬭ No
- ⬭ No Opinion

26. **Do you have any additional comments about your trip today?**

_____

_____

Demographics

27. **What is your age?**

_____

28. **What is your gender identity?**

- ⬭ Male
- ⬭ Female
- ⬭ Non-binary/third gender
- ⬭ Prefer not to say
- ⬭ Other: _____

29. **Are you of Hispanic, Latino, or of Spanish origin?**
Mark only one oval.

- ⬭ Yes
- ⬭ No

Survey continues on next page

30. **How would you describe yourself?**
Check all that apply.

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Other: _____

31. **Approximately how many minutes per day do you spend on social media?**

_____

32. **Approximately how many times do you visit State or National Parks per year?**

_____

33. **On the scale below from never to always, how often do you...**
Mark only one oval per row.

	Never	Seldom	Sometimes	Often	Always
Walk off trail?	◯	◯	◯	◯	◯
Share pictures and information about places you go on social media?	◯	◯	◯	◯	◯
Seek out natural places that you see on social media?	◯	◯	◯	◯	◯
Get inspired to engage in outdoor recreation after seeing or reading about natural spaces online?	◯	◯	◯	◯	◯

Survey continues on next page

34. On the scale below, rate your level of agreement with the following statements.
Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I spend a lot of time in natural settings.	◯	◯	◯	◯	◯
Engaging in pro-environmental behavior is important to me.	◯	◯	◯	◯	◯
I think of myself as a part of nature, not separate from it.	◯	◯	◯	◯	◯
I follow "leave no trace" policies.	◯	◯	◯	◯	◯
I carry out everything that I carry into a recreation space.	◯	◯	◯	◯	◯
I think about how my behavior affects the environment.	◯	◯	◯	◯	◯
I feel comfortable in the outdoors and doing outdoor activities.	◯	◯	◯	◯	◯
I enjoy places with well-developed trails and facilities.	◯	◯	◯	◯	◯
Natural settings should feel undisturbed.	◯	◯	◯	◯	◯

Thank you for participating!

Please seal this survey booklet in the
pre-addressed envelope
provided and put it in the mail.
No additional postage is needed.

Appendix B

Survey schedule

SG: Stout Grove Trail

BS: Boy Scout Tree Trail

MC: Mill Creek Trail

June 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 SG /MC 9am-5pm	6 BS/MC 8am-4pm	7 SG/MC 9am-5pm	8 BS/MC 8am-4pm
9	10	11	12	13	14	15
16	17	18	19 BS/MC 9am-5pm	20 SG/MC 8am-4pm	21 SG/BS 9am-5pm	22 BS/MC 8am-4pm
23 SG/BS 8am-4pm	24	25	26	27	28	29
30						

July 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 SG/BS 9am-5pm	5 SG/MC 8am-4pm	6 SG/BS 9am-5pm
7 BS/MC 9am-5pm	8 SG/BS 8am-4pm	9	10	11	12	13
14	15	16	17	18	19 SG/BS 9am-5pm	20 SG/MC 9am-5pm
21 SG/BS 8am-4pm	22 BS/MC 9am-5pm	23 SG/BS 8am-4pm	24	25	26	27
28	29	30	31			

August 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 SG/BS 9am-5pm
4 SG/MC 8am-4pm	5 SG/BS 9am-5pm	6 BS/MC 9am-5pm	7 SG 8am-4pm	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Appendix C

The questions under the category "Information Gathering" was as follows:

- In what ways did you originally find out about the park?

    o   Friends and Relatives

    o   Newspaper/Magazine Article

    o   Blog Post

    o   State Website/National Website

    o   Social Media

    o   Guide Book

    o   Other

- What Source did you rely on the most for information about the park?

- Was this source helpful in preparing you for your trip to Jedediah Smith State Park?

    In the case of information sources, responses were analyzed for each individual source, whether a respondent answered only one selection for the first question, and whether they answered the same selection in the second question. If, in the second question, the participant indicates a different source for information collection, that indicates that the participant did additional research before visiting.

    "Park Experience" included the questions;

- Which activities have you participated in or plan to participate in at Jedediah Smith State Park during your visit?

- o Biking

- o Boating

- o Camping

- o Fishing

- o Geocaching

- o Hiking

- o History or cultural study

- o Horseback riding

- o Nature study

- o Photography

- o Picnicking

- o Ranger program

- o Swimming

- o Wildlife viewing

- Which trails did you use today?

- Did you go to the visitor center today?

- Approximately how many times do you visit State or National Parks per year?

- How long do you plan to spend in this area during your trip?

- Is this your first time visiting Jedediah Smith State Park?

- How often do you walk off trail?

- Rate your level of agreement with the following statements:

      ○ I follow "leave no trace" policies.

      ○ I carry out everything that I carry into a recreation space.

Individual activities were counted along with results for going to the visitor center for a "total activities" variable. Which trails did you use today was not analyzed by individual trail. Instead, I grouped popular trail totals and unpopular trail totals, as well as general totals and analyzed the data.

"Development Opinions" consisted of:

- Rate your level of support for the following management solutions:

      ○ Expand the trail system.

      ○ Expand trailhead parking.

      ○ Add bathrooms at trailheads.

      ○ Provide more educational signs about plants, animals and cultural importance.

      ○ Expand ranger-led educational programs.

- Would you take a shuttle that made regular stops throughout the park to avoid traffic?

- Would you be willing to pay a fee to take a shuttle?

      ○ If yes, what is the maximum amount of money you'd be willing to pay to take the shuttle?

- Would you be willing to pay a fee to enter Jedediah Smith State Park in your private vehicle?

- o If yes, what is the maximum amount of money you'd be willing to pay to enter the park in your vehicle?

- Rate your level of agreement with the following statement: I enjoy places with well-developed trails and facilities.

  "Identity" contained the following questions:

- What is your age?

- What is your gender identity?

  - o Male

  - o Female

  - o Non-binary/third gender

  - o Prefer not to say

  - o Other

- Are you of Hispanic, Latino, or of Spanish origin?

- How would you describe yourself?

  - o American Indian or Alaska Native

  - o Asian

  - o Black or African American

  - o Native Hawaiian or other Pacific Islander

  - o White

  - o Other

- Rate your level of agreement with the following statements:

  - o I spend a lot of time in natural settings.

o Engaging in pro-environmental behavior is important to me.

o I think of myself as a part of nature, not separate from it.

o I think about how my behavior affects the environment.

o I feel comfortable in the outdoors and doing outdoor activities.

Within the "Grove of Titans" category, I first analyzed the question, "Did you come to visit Grove of Titans?" among all responses, then narrowed the responses to those who answered positively to the question above and then analyzed the following:

- How did you hear about Grove of Titans?

  o Friends or Relatives

  o Newspaper/Magazine Article

  o Blog Post

  o State Website/National Website

  o Social Media

  o Guide Book

  o Other

- If you visited Grove of Titans today, do you support building walkways around the trees at Grove of Titans?