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The Deaf Experience in National Parks with an Emphasis on Rocky Mountain National Park

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THE DEAF EXPERIENCE IN THE NATIONAL PARKS
WITH AN EMPHASIS ON
ROCKY MOUNTAIN NATIONAL PARK

A Capstone
Submitted in Partial
Fulfillment of Graduation with Honors Distinction and
the Degree of Bachelor of Science

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THE DEAF EXPERIENCE IN THE NATIONAL PARKS WITH AN EMPHASIS ON ROCKY

MOUNTAIN NATIONAL PARK

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Abstract

This research investigated the experiences of Deaf visitors to the Rocky Mountain National Park (RMNP). The little research available focuses on how the National Park Service and its workers interact with Deaf people. Conversely, this study investigated the experiences of Deaf people and their perspective regarding interacting with the park and its members. A study regarding Deaf visitors in Yosemite National Park found that many were invisible to its employees. The desire from the Deaf community and lack of research shows the significance of this study. This analysis is crucial to the human experience as quality of life is improved with access to outdoor recreation. A narrative analysis approach from a first-person perspective of those who are Deaf and have spent time recreating in RMNP was used to secure this qualitative data. A purposive sampling technique helped to strategically identify participants who fit the necessary criteria. Participants were interviewed with open-ended and semi-structured questions. Then, a focus group was conducted. The interviews and the focus group were conducted via Zoom using certified ASL interpreters, and the interviews were subsequently transcribed. Transcriptions were thematically analyzed. The results showed that Deaf people experienced social, accessibility, educational, and economic barriers to outdoor recreation in RMNP, with social and accessibility barriers being the most prevalent. Participants discussed the need for more accessible park information, interpreters, inclusive social events, and better visual signage. Recommendations for RMNP included establishing a Deaf awareness day, adjusting signage to include visuals, and increasing access in all four above-mentioned categories.

Keywords: Deaf, National Park, narrative analysis, accessibility, tourism, interpretation

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Introduction

Significance of Study

Research shows that Deaf people face significant barriers in outdoor settings, but until this research study, it had not yet been investigated on how these barriers intertwine with our National Parks (DeMare, 2019). Due to a lack of outdoor Deaf groups and encouragement to participate in these groups, Deaf people encounter barriers in outdoor recreation (DeMare, 2019). Quality of life is improved with access to leisure activities, making this analysis crucial to human experience. This study investigates the experiences of Deaf visitors in the National Parks, specifically Rocky Mountain National Park (RMNP) via interviews. This article will discuss how our local Deaf community interacts with RMNP based on known outdoor barriers. Examining the few articles related to this topic is imperative for the framework of this study.

Little to no research exists within this field, even though the need for it has been well documented (DeMare, 2019). The literature that does pertain to this subject will be studied to accurately describe what the National Park Service (NPS) is required to do for Deaf visitors, what they have chosen to implement outside of requirements, and how this affects the experiences of Deaf visitors. Not only is this beneficial to the NPS to make sure that their time and budget is utilized in the most beneficial way for Deaf visitors, but it also reduces marginalization by contributing to the integration of the Deaf community into society through accurate representation (Hansen et al., 2014; Rotar, 2020). In a study regarding Deaf visitors in Yosemite National Park, it was found that many of these visitors had been invisible to its employees (Cayton, 2010; Hansen et al., 2014). Deaf people are often victims of marginalization in recreation and leisure activities that results in unique needs and experiences since Deafness

often goes unnoticed (Malema et al., 2019). Regardless of whether Deafness is easily observable "every visitor deserves appropriate access", as "nature is a human right" (Hansen et al., 2014; Peterschmidt, 2023). It is imperative to examine the opinions of the Deaf community on ways to increase accessibility and interpretive accommodations in our National Parks (Zajadacz, 2012).

Definition of Terms

The phrasing and terminology "Deaf" aims to include all who experience hearing difficulty and who use American Sign Language (ASL). For this study, we will use the terminology 'Deaf' to refer to anyone who is Deaf, deaf or hard of hearing, as the participants all felt they would use this terminology to describe themselves. This umbrella term of "Deaf" will encompass Deaf culture and any range of hearing loss that requires the use of American Sign Language. It is in this way that this research is guided, entirely through the Deaf perspective.

Literature Review

Accessibility and the NPS

The NPS is required by the Rehabilitation Act of 1973 to provide accommodations for equal program access. There are steps the NPS has made to comply with these standards to make sure their visitors are not only comfortable while visiting the park, but also receive equitable benefits as any other visitor would (National Park Service, 2000-2004; Hansen et al., 2014). The National Recreation and Park Association (NRPA) is a non-profit organization that focuses on inclusion rights for leisure for all individuals in quality of life, support, accommodation, and barrier removal for communities (National Recreation and Park Association, 1999; Hansen et al., 2014). Their goal is to "encourage providers of park, recreation, and leisure services to provide

opportunities in settings where people of all abilities can recreate and interact together" (National

Recreation and Park Association, 1999, Purpose section, para. 4; Hansen et al., 2014).

Each National Park must list on its site the accessibility, availability and attainability of

sign language, interpretation, captioning, transcripts, or assistive listening devices (Harpers Ferry

Center Accessibility Committee, 2012; Hansen et al., 2014). Even though very basic training in

accessibility for NPS employees is provided, it has been noted by the NPS employees that more

training from a member of the Deaf community should be implemented. (Harpers Ferry Center

Accessibility Committee, 2012; Hansen et al., 2014). Another aspect of this training that was

recommended to be included "sensitivity training" that encompasses accessibility issues, basic

courtesy and correct terminology (Hansen et al., 2014). After all, effective communication is a

crucial component of ADA compliant interpretation (National Center on Accessibility, 2002;

Hansen et al., 2014). A park may have adequate accommodation and accessibility for visitors

with disabilities, but a lack of information about how to obtain interpretive accommodations and

accessibility can still result in discrimination (Bianchi et al., 2020).

Even with this kind of legislation, many inequities exist regarding communication within

social context and linguistic access (DeMare, 2019). Accessibility and interpretation have an

underlying theme of inclusivity, ensuring all visitors have equal access to the National Parks and

the experiences they offer.

Interpretation and the NPS

The National Association for Interpretation defines interpretation as the "process that

forges emotional and intellectual connections between the interests of the audience and the

meanings inherent in the resource" (National Association for Interpretation, n.d.; Hansen et al.,

2014). The NPS defines interpretation as "a catalyst in creating an opportunity for the audience to form their own intellectual and emotional connections with the meanings and significance inherent in the resource" (National Park Service, Interpretive Development Program, n.d., para. 3; Hansen et al., 2014). Based on these two overlapping definitions, it is clear to see that the goal of interpretation is to not only increase the visitor's enjoyment and understanding of the parks, but to foster connections within nature (National Park Service, Interpretive Development Program, n.d.). This ideology also falls in line with the NPS Director's Order #6: Interpretation and Education (2005-2011) when it states, "Interpretation and education is the key to preserving both the idea of national parks and the park resources themselves", and that the "NPS will ensure, to the greatest extent possible, that persons with disabilities receive the same interpretive opportunities as non-disabled persons, in the most integrated setting possible" (section I, para. 1; section VIII.I, para. 1; Hansen et al., 2014). In addition to this section in the NPS Director's Order, there is also a piece that states that their mission for those with disabilities "receive as close to the same benefits as those received by other visitors" (National Park Service Director's Order #42, 2000-2004, section V.A.2; Hansen et al., 2014). Although the NPS cares to include this level of interpretive accommodations in their mission, they are also mandated by law to do so. According to the Harpers Ferry Center (HFC) Accessibility Committee, "park visitors who have physical, sensory or cognitive disabilities have legally established civil rights to receive the same information and context that NPS interpretive media products have always provided to their fellow citizens" (Harpers Ferry Center Accessibility Committee, 2012, p. 4, para. 1; Hansen et al., 2014). For the NPS, the HFC has the responsibility of accessibility incorporation by managing and directing its interpretive media (Harpers Ferry Center Accessibility Committee, 2012; Hansen et al., 2014)

There are a few different common interpretation services according to the NPS's Interpretive Design Center. These include audiovisual media, historic furnishings, museum exhibits, eight personal services (human to human communication), publications and wayside exhibits, web-based media, subtitles, audio descriptions, assistive listening systems, printed transcripts of a program, or a qualified sign language interpreter available upon request (Harpers Ferry Center, Division of Interpretive Planning, 1998; Harpers Ferry Center Accessibility Committee, 2012; Hansen et al., 2014). In RMNP, interpreters must be requested at least a month in advance. Any requests under a month may not be able to be met (Park et al., n.d.). For Ranger led programs, assisted listening devices may be requested up to 3 days in advance. (Park et al., n.d.). Interpretive services not only influence visitor knowledge, understanding and satisfaction, but "through interpretation we enhance understanding and appreciation of our cultural and natural legacy" (Beck & Cable, 2002 p.8; Ham & Weiler, 2007; Hansen et al., 2014). Even with the NPS's commitment to provide quality interpretation to its visitors, there are still discrepancies that exist between park visitors in need of accommodations and the NPS (Hansen et al., 2014). This research uncovers exactly what discrepancies there are and how to manage them from the Deaf perspective.

Universal Design and the NPS

The concept of Universal Design means going above and beyond minimum legally mandated accessibility standards to reach the needs of as many people as possible (Skulski, 2007; Hansen et al., 2014). This design is implemented for the sole purpose of attempting to create the same experience for anyone visiting a National Park. In a focus group of accessibility specialists that included members with sight and hearing impairments, it was found that improvements to accessibility via adjustments to exhibit lighting, amount of text on panels, and

the addition of assistive audio, cell phone tours and other audio devices would be the most helpful (Harpers Ferry Center, 2007; Hansen et al., 2014). This was the first kind of methodical review directly from accessibility receiving groups for the NPS, and Universal Design was used as an evaluative tool for this survey (National Park Service, Chesapeake & Ohio Canal National Historical Park, 2007; Hansen et al., 2014). While Universal Design is not legally mandated, it can be a useful design tool to make sure any product in a variety of environments can be used by any person without any adaptation (Connell et al., 1997; Hansen et al., 2014). A great way to ensure that Universal Design is being actively implemented into National Parks would be to incorporate a team of accommodation and accessibility receivers to the design, and in this case, members of the Deaf community (Harpers Ferry Center Accessibility Committee, 2012; Hansen et al., 2014).

Deaf Tourism and the NPS

Tourism, when planned, regulated, and monitored correctly, has the potential to positively influence socio-cultural elements, but when done incorrectly, can cause damage to people and their natural environment (Lund-Durlacher, 2015). In addition to its legally mandated interpretation and accessibility programs, there is one National Park that has gone above and beyond for their Deaf visitors.

Since the 1970's, Yosemite has been the only National Park that has a permanent position of a Deaf Services Coordinator (Cayton, 2010; Hansen et al., 2014). This position has since greatly improved accessibility for the visitors who are Deaf with the many programs it brought to the park. Some of these programs include interpreted weekly scheduled ranger programs and a weekly sign language class for hearing visitors (Cayton, 2010). Yosemite

National Park's closest city is San Francisco, which is a 3-hour drive, and in 2022 had 3,667,550

visitors (*Stats Report Viewer*, n.d.). RMNP's closest city is Denver, a 2-hour drive and in 2022

brought in 4,300,424 visitors (*Stats Report Viewer*, n.d.).

A common theory for why a program like this has not been implemented in RMNP is due

to a lack of budget, but according to Schacter, a mother advocating for her Deaf daughter for

better National Park accessibility, "lack of finances is not an excuse for inappropriate access"

(Disability access in the National Park System, 2006, a, "Statement of Janice Schacter," para. 12;

Hansen et al., 2014). This example relates to the theme that National Park visitors notice unequal

access first, and not the dollar amount associated with accommodating accessibility. Research

has shown that Deafness is not what inhibits travel and tourism for the Deaf, but obstacles in

participation and the need for activities for their own culture and recognition do (Werner et al.,

2019). There is a gap here that NPS tourism can aim to fill, as isolation is reduced if diverse

opportunities are offered to those who are Deaf (Werner et al., 2019). Other potential theories as

to why RMNP may not have implemented this position could be due to lack of knowledge that it

is needed. This research answers these questions by interviewing Deaf RMNP visitors to gain an

appropriate understanding of their experiences.

Deaf Perspective

Legislation for people with disabilities applies to more technical solutions than the

broader social context. Even though there are physical barriers present in outdoor recreation,

there is more of a need to learn about social context in this outdoor setting (Burns et al., 2009;

Hansen et al., 2014). Since there are differing perspectives on Deaf identity, there must be a

consistent and open dialogue to maintain accurate representation of inclusive recreation (Coco-

Ripp, 2005; Hansen et al., 2014). The NPS surveyed its own employees and found that they continually mentioned the importance of examining and applying current research to evaluate programs in place and add needed improvements (Powell et al., 2017). This speaks to not only the ongoing need for research within this field, but for the responsibility of effective communication between both parties. In a Backcountry publication of an interview with a Deaf hiker, they stated, "There is 50/50 responsibility in trying to communicate with those who are Deaf as a hearing person, especially in an outdoor setting. The hardest part about being a deaf hiker? Everyone else" (Milling, 2022). A research article on Deaf tourism noted that it is crucial to include Deaf people on planning committees for interpretive accommodations and accessibility (Jensen et al., 2023). This speaks to the need for inclusion of persons with disabilities on planning committees for programs directly correlated to their disability.

Barriers for Deaf People in the Outdoors

In a research study about barriers for Deaf people in outdoor settings, 4 topics were explored. The first barrier investigated relates to economic barriers. It was found that one of the most significant barriers to Deaf people in outdoor settings is economic barriers (DeMare, 2019). This fell mainly under the category of the need to hire more interpreters, rather than personal finances limiting outdoor activities (DeMare, 2019). The NPS provides Deaf visitors a free Access Pass for themselves and up to four passengers for free entry into their park (National Park Service, n.d.; Hansen et al., 2014). This can help take away some of the economic barriers of outdoor pursuits in the Deaf community, but many others still exist. The second topic researched was social barriers. One participant noted that when they have joined hearing hiking groups, they often felt left out (DeMare, 2019, p. 41). Overall, the data indicated that a main social barrier in outdoor pursuits is the "lack of outdoor Deaf groups and lack of encouragement to succeed"

(DeMare, 2019). It was suggested that Deaf focused classes or events would provide less of a barrier than hearing ones (DeMare, 2019). The third barrier investigated was legal/accessibility barriers. The research showed that 23 separate comments all related to either lack of ASL, lack of ASL interpreters or lack of feasible communications (DeMare, 2019). Access to information was rated one of the largest barriers (DeMare, 2019). The fourth barrier examined was educational, but this provided very minimal barriers (DeMare, 2019).

Rocky Mountain has put on some events to reduce barriers such as the "Fly Fishing in the Rockies- a reduced barriers fishing event." A large part of what is discussed in this research is how effective the access of this information is to visitors, and how well individuals convey the need for these kinds of events (Park et al., n.d.).

Methodology

Overview

A narrative analysis of the Deaf experience in the National Parks with a focus on RMNP was chosen for this study. As stated in the literature review, there are very few research studies done within this field. The most notable studies from the NPS on interpretive accommodations include surveys from the National Park employees themselves, not the ones who are on the receiving end of these services (Hansen et al., 2014). Findings from the little research that does exist pertaining to this study show that there are numerous barriers Deaf people face when exploring the outdoors. However, this research has never been applied to our National Parks specifically. Therefore, our research question is, "What are perceived barriers for Deaf people in RMNP, and what resources increase accessibility and belonging for these marginalized

communities?" By interviewing members of the Deaf community who actively engage in activities in RMNP, we filled this gap in research.

Study Design

Obtaining a first-person perspective of the Deaf experience in RMNP thoroughly addressed this research question. An inductive approach to a narrative analysis was used to portray the meaning behind this lived experience. A narrative analysis research method shows experiences and meaning-making processes, making it optimal for this style of research (Burck, 2005). This qualitative approach allows us to ask the participants open-ended questions in the form of a semi-structured interview regarding their experience, which gives us meaningful insight on this research.

Sample Set

Our sources of data are lived experiences of those who are Deaf and have spent time in RMNP. We utilized a purposive sampling technique which involved the researcher strategically selecting participants who were the most useful to this form of research (Campbell et al., 2020). Selected participants had plenty of experience accessing National Parks, specifically RMNP, or else interviewing them would have be futile. It is because of this that inclusion criteria includes being Deaf and having multiple trips to Rocky Mountain National Park and any other National Parks. We uncover the significance of National Park access for our local Deaf community by choosing to base this experience in Rocky Mountain National Park. We had a total of 4 participants.

Tools

Participants were strategically selected based on recommendations from the researcher and other sources, such as those who are Deaf, and close members of the Deaf community or those who spend copious amounts of time in the National Parks. Once selected for the study, participants were interviewed on Zoom by the researcher and interpreters. This way the meeting could be recorded and could be easily transcribed. Once everyone was interviewed separately, a focus group was created where everyone was collectively interviewed again by the researcher and interpreters. This way, our research is triangulated, as this is especially important for this specific kind of research. Triangulation refers to multiple modalities of data sources that will give a full understanding of our topic as well as create validity and shed light on multiple lived experiences (Rhineberger et al., 2005). Interview questions covered broad topics related to the National Park Service like accessibility, knowledge of the park, etc. The individual and group interview questionnaires are found within appendices C and D. We then processed the data through a thematic analysis and were able to identify themes and subthemes to further understand barriers in the National Parks as it relates to Deafness. Many codes had multiple meanings and were therefore coded into several themes.

Procedures

Data collection was obtained through the months of December 2023, January 2024, and February 2024. Individual interviews and focus group interviews took a maximum of two hours each to complete. Since the interviews were completed on zoom, everything was recorded and transcribed on this program. The researcher was also taking notes to record potential reactions to questions. There was no other assistance other than the interpreters. Interpreters are bound by a code of ethics to maintain confidentiality (Registry for Interpreters for the Deaf, 2005). IRB approval was mandatory for this project, as we include human participants. All participants read

and signed an informed consent form. The IRB approval and informed consent form are found in Appendices A and B.

Dealing with Data

Data was stored on the researcher's academic laptop and only the researcher and their mentor, Dr. Barbara Garrett, were given access to it. These interview files were in a locked file on the researcher's computer and none of the group's personal information was used. Interview recordings will be kept until the end of the academic school year, in the Spring of 2024.

Quality Control

To ensure that everything is transcribed correctly, when using a direct statement from the interviewee, participants were contacted first to confirm their exact statement. Interview questions were initially drafted by the researcher and then proofread by Dr. Barbara Garrett and Melinda Kisling. Professor Kissling is a member of the Deaf community, as well as a teacher at the University of Northern Colorado. It was imperative that these interview questions were initially approved by someone who is Deaf to ensure they are culturally appropriate. In any interpretation setting, there is always a potential to have something interpreted incorrectly. This is why exact statements were approved with the participants before use. The quotes from the Deaf participants in this paper are transcribed from simultaneous interpretations created in real-time by certified interpreters. While they are accurate and have been reviewed by each participant for accuracy in content, they may not read as fluent English due to the limitations of simultaneous interpretation.

Results

Introduction

This section introduces the results from the individual and group interviews. Four main topics originating from DeMare's (2019) research of Deaf barriers in the outdoors were used to test if National Parks reported the same outdoor barriers as any other outdoor setting. This was further adapted to mainly focus on Rocky Mountain National Park, as it aids in giving a perspective on local barriers. However, one could argue that any one of these barriers could be generalized to other National Parks. Hence, the inclusive yet specific title of the research paper.

Response Timeline

Initial emails to potential participants were sent out in December 2023 and January 2024. Initial individual interviews were conducted in December 2023, January 2024, and February 2024. The group discussion was completed in February 2024. Individual and group interviews ranged between 1 and 2 hours long. Emails and phone calls to find qualified and experienced participants who are Deaf and regularly recreate in National Parks were sent out to Rocky Mountain National Park, University of Northern Colorado American Sign Language and Interpreting Studies program, Rocky Mountain Deaf School and the National Outdoor Leadership School (NOLS). There was a total of 12 participants that responded, but some were excluded due to never visiting Rocky Mountain National Park, limited exposure in National Parks overall, responding out of the window when participants were being selected or being unable to schedule a time to interview.

Demographic Data

Demographic data was excluded for this study so as to not make our sample size smaller. With sampling from our local Deaf community in a narrow timeline, we felt that this data would not be as prevalent to our research as it would to source a suitable number of participants to conduct in-depth interviews. The only inclusion criteria for this study was to be Deaf and have spent a good amount of time exploring RMNP, which usually referred to the local population.

General Findings

Overall, the data shows that accessibility, social, economic, and educational barriers are all intertwined. One of the participants responded, "Yeah, I mean across the board, they really all are (important). Because they do tie in, because one can affect the other." However, when rated on a scale from greatest amount of a barrier to least amount of a barrier, accessibility and social barriers proved to be the most significant barriers compared to economic and educational barriers. Although, this was hard to decipher based on the amount of participant quotes that state how much these barriers overlap with one another.

Accessibility Barriers

Accessibility barriers were mainly reported in terms of access to information, access to interpreters, communicating with other park members, lack of knowledge of Deaf NPS workers, lack of Deaf education for park workers and universal design being implemented into the park.

Accessibility to Information

Accessibility to information was brought up consistently in individual and group interviews. It was mentioned as a major barrier for every theme and subtheme discussed in this article. Regarding accessibility to information one participant noted, "Where do you find that

information? Where is that being advertised? How is the information being disseminated, you know? If we have collaborative efforts on this. I don't think I've ever seen that and there's a gap between what these things are. It is clear that there is a need to increase awareness about National Parks to the Deaf community." Most of the participants noted that they did not know how or where to find information about RMNP and services they offer for Deaf people. "I wish there was just more access for everybody, and believe many people will go if there was access to events and workshops" another participant added.

Accessibility to Interpretation

Participants in this study recognized that there is a national interpreter shortage and hypothesized that this could be why it takes a few weeks to be able to request an interpreter. Nevertheless, they still noted barriers they face in RMNP due to this lack of access, whether this is RMNP's fault or not. One participant noted, "I just feel like it's not fair as hearing people can be spontaneous and join events while for Deaf people, they have to plan in advance to request an ASL interpreter. I'd like to have that same equality in my life, and I'd like to be able to have that freedom to be spontaneous." There was a consistent theme of lack of equality and flexibility in recreating in RMNP due to the time constraint for hiring an interpreter. Another participant noted, "Hearing individuals have a lot more opportunities to access that information, whereas for Deaf and hard of hearing, we have to access it in different ways", and "because that still isn't equal because it's all easy 24-hour access for all hearing people. But then for deaf people, we have to request an interpreter and wait 3 or 4 weeks if we want to attend. I would prefer that we all have the same full and equal access." Although RMNP does meet all accessibility standards as referenced in the literature review, it doesn't mean that there aren't still gaps in equal accessibility. One participant was surprised when asked about interpretation at RMNP, as they

didn't know it existed. The participant claimed, "This is the first time to learn about this, especially after living here for over 25 years and attending to the National Park. I've never heard that that was offered or an option to have Deaf Rangers or staff at RMNP which is wonderful. I didn't have any knowledge or awareness about that and would love to learn more for my family and my students at work."

Lack of knowledge about these services could correlate to the lack of requests for interpretations services the park gets. Deaf people who want interpretation in the park may think they have to pay for these services themselves, as one participant pointed out, "Often Deaf people feel they cause burden or pressure for companies to pay for sign language interpreters, but it's very important for us to have the access to that information plus they can find funding or set the budget for accommodations." This lack of requests for interpreters could also be tied to the people wanting interpretation not having enough exposure to National Parks. A participant brought up that, "I mean, some probably don't have enough exposure to the National Park, and so they're not aware of who and where and what to contact to request it. But I mean sometimes they're so used to just that lack of communication or lack of provision for the interpreter that it might just be that." A key point to focus on from this participant quote is that the overall lack of accessible interpretation within our society could be contributing to this problem, as Deaf people are used to not having these services readily provided for them.

When asked about involvement in activities at RMNP, one participant said, "Well, who do I contact? And what if they don't sign, or if I need an interpreter for that opportunity? So that is kind of a barrier, because if I saw the event and didn't have a month to request the interpreter or things like that, then it puts it back on me, or I'm going there without one. Really, I want to be involved in a lot more things because I do like to learn about the National Parks. I like to know

things a little more in depth and learn about the land. And I care about the environment a lot." This participant quote speaks to the fact that many Deaf people want to be more involved with RMNP but don't know how to initiate it. In conclusion, another participant added the need to, "Put the information out a little bit more widespread so more people know about it before entering the park. It might be the reason why we're not getting enough of having interpreters for the visitors." This correlates to the previous theme of needing adequate access to information.

Communication Between the Deaf and Hearing

A language barrier exists between hearing and Deaf people. Although some Deaf people can read English and try to speech read, this should not be an assumption made for any Deaf person. A participant explains, "Some Deaf people, they understand how to read and know English very well. Some Deaf people, English is not their strong suit, so they tend to depend more on sign language." In these circumstances, Deaf people are the ones left to try and fill the communication breakdown. Another participant said, "In regards to being Deaf trying to, you know, go the oral method, and speak to people the best you can, (but) some of us can't do that. So sometimes that's a challenge. One way is to try to write back and forth, and the people themselves are always very friendly, and you know they try to deal with the experience as best they can and write back and forth. But I do wish that it was more accessible as regarding the (accessing the) information." Sign language is the primary language for Deaf individuals, making this form of communication the easiest for them. For Deaf individuals who don't know how to read English, this can cause some major anxiety, as one participant said, "Not all Deaf people can understand English. English may not their first language. So sometimes it can feel oppressive for them from what they've experienced all their lives, and so maybe it's overwhelming the amount of information that they have to read. Then again, that goes back to

having some things provided in sign language, or having more visual aids, or maybe pictures or other things, to show the information besides just reading and reading and reading rather than listening in a natural way through ASL." It is a common understanding across languages and cultures that it is easiest to learn in your primary language, even if you can speak multiple languages. Even with interpretation, there can still be hardships. One participant said, "Interpreters are fine, but if you have to keep looking back and forth, and it's nice to have that direct communication with a feature that can sign." Since ASL is a very visual language, reading cannot denote facial expressions and non-manual markers found in sign language. Everyone, no matter what language they speak, benefits more in conversation within their mother tongue. Accessibility to information in our native language is essential.

Highlighting Deaf Workers in RMNP

Most participants were shocked to learn that you could be Deaf and be a park ranger. They were even more surprised to learn that there are 3 Deaf people employed in RMNP. A participant said in response to this information, "This is really important and great information to know. It makes me wonder if there are maybe other park rangers elsewhere, that maybe we're just not aware of. It makes me think of all the places we've gone to where we haven't heard of any, and now I know there's 3 in one place which is cool! I would love for more people to know about that, maybe with this information people would know to ask for an interpreter too." This representation within RMNP is crucial for Deaf people to know about. Not only does this make them feel more connected to the park but may be able to introduce them to more Deaf services RMNP provides.

Education Regarding Deaf Language and Culture for NPS Workers

Training park rangers who communicate with the public would be a great way to increase accessibility for Deaf people. Not only should this training include basic ASL, but it was recommended to include information about Deaf culture. A participant explained, "So just some basic training on some basic signs would be great. There's such a wide range of Deaf individuals with different backgrounds and levels with life experience, education and language. Some Deaf individuals sign, use sign that is not ASL, some can speak and sign, some use their voice. So, with that range it would be good for Deaf presenter to provide basic training about Deaf culture, norms, traditions, history and more." Another participant added, "I feel like everyone should be educated on Deaf culture. No matter what position you're in, because if you work in the National Park Service you will most likely have a Deaf visitor come to you, and you want to have that enough education and knowledge how to communicate with them." This type of training from the NPS could help bridge a gap between Deaf visitors and hearing workers in RMNP.

Universal Design

Universal design can be a very useful tool if it is implemented correctly. A good way to ensure this, based on participant responses, would be to include a Deaf person on a committee to verify the design. One participant suggested, "It would be important to get feedback and inputs about accessibility and accommodations from diverse members within the Deaf community which includes individuals who Deaf, DeafBlind, Hard of Hearing, Late Deafened and Deaf Disabled. I wouldn't mind joining or volunteer being part of the committee if it was set up also would be happy to spread the word." This quote speaks to the mass amount of support from the participants to want to be included in measures that increase their accessibility within RMNP.

Social Barriers

When asked if participants would attend an event with a sign-language interpreter, all participants answered yes. One participant mentioned, "Of course I would definitely go if there's Deaf Awareness day as it means it would be fully accessible with ASL interpreters. Deaf people don't have that opportunity often. More information in ASL or that is visual for Deaf would be great." Another participant had a similar mindset and chimed in, "Anytime. We can do that. That would be great for my family, I would make it a family event, and even extend it to friends." However, it was found that a Deaf-centric event would be even more inclusive. The lack of social groups and activities than have ASL can result in a barrier to access. Participants were ecstatic when asked if they would attend a Deaf-centric event in RMNP. One participant said, "Oh, yeah, I would go, and I wouldn't be surprised if several others would as well. You know there's a lot of Deaf families like mine, we could all go and support one another which would be fun, to set up camp and be able to mingle, chat, catch up with friends/community members. So yes, if Rocky Mountain National Park hosts one then I would absolutely grab the opportunity to learn more with communication access provided." In the interviews the participants also continually mentioned that they would be happy to be involved in planning an inclusive event like this.

Not only would an even like this be useful for the Deaf community, but it could help facilitate awareness between the hearing and Deaf community. A participant noted, "I think this would be great to set up a partnership within the National Park staff and the deaf community/organizations." Another participant said, "It would be nice if they encouraged more of that socialization, and not so much just, you know, going at your own leisure." The responses from the participants all indicated how positive an event like this would be for the hearing and Deaf community. A final sentiment from a participant on this topic is, "I've always envisioned

for the Deaf and hearing community to be able to grow in a way that they can work together and bridge that gap so that they can partner and work together. It would really be nice, you know, to have that, you know that bridge, as far as working together, maybe at the National Park, and having community that way where they did more events that weren't specifically just for Deaf but encouraging the Deaf to get in with the hearing people. Maybe encouraging the hearing individuals to be exposed more to that culture and to sign language and things as well. I've always envisioned that." It is clear to see the heartfelt expressions the participants had in response to an inclusive event at one of their favorite places, and the frequent comments that they would be more than happy to help arrange an event such as this. They all also noted the need to have this properly advertised so as to not pose an accessibility barrier.

Economic Barriers

The results found that more than one's personal financial status, accessibility to information about the access pass posed the largest barrier for economic barriers. One participant did acknowledge that accessing the National Parks could pose an economic barrier by discussing that most people who go to the parks have the finances to go. They stated, "In my opinion I don't see very many people that are going, that are not people that are more affluent or like, you know, they have the money. They can afford the gear, and the different things that it entails. There are people who cannot afford that. Even just the simple gas to drive there and to visit, and all that, you know, extra expenses. Even if they were aware of getting in free with the access pass, sometimes it's unfortunate to see that disparity financially." However, no participants listed personal financial limitations to enter RMNP other than lack information about the access pass being a barrier. One participant told their story of how they discovered the access pass in saying, "We were at the pay station, where you reserve things, get tickets and stuff, and the employee

had noticed that we were Deaf and was like, 'Hey, do you have one of these?'. All of us were like 'What is that?'. We were kind of looking at each other because we were clueless. We didn't even know it existed. So, then she gave us these access cards and there's no charge. It's free to access the National Parks, and we were really flabbergasted about that, because we have been clueless all this time. So that's my point. Where can we make sure that information gets out to the public? I think we need more advertisement related to that." The results from most participants mentioned that they found out about the access pass based on a very miniscule amount of information, and that the Deaf community should be made more aware of the benefits.

Educational Barriers

"I think that all information and education is very important for all ages, and it can be a barrier with no access to ASL interpreters, visual signs about information, signing staff, etc..." stated one participant. The results for educational barriers mainly discuss education via advertising of park services as a barrier rather than one's amount of schooling. Participants noted that education is important as it directly ties to being able to access information. It was recommended that the NPS at RMNP provide more education on the access pass, training with animal encounters, education on how to dress, altitude sickness, etc. Only one participant noted the impact of personal education in accessing RMNP by saying, "Educational experiences vary from person to person depending on their educational background and language access. Another barrier is not getting the information out as there are many that are not aware which is why it's so important to spread the word or set up group email list specifically with Deaf Coloradans." The results show a surprising number of requests for education on animal safety. A participant suggested, "There are all kinds of different snakes or lions out there, for example, and sometimes people don't have the educational background to know what to look for in the warnings of like. I

am still learning about the types of animals living in the Rocky Mountains. So that kind of information may be a little more in depth would be helpful." The results show that participants did not view education as a very important barrier in accessing the park, but it did when it came to exploring the park.

Discussion and Recommendations

Overall Discussion

The results from DeMare's (2019) study indicate that social and educational barriers were least significant for Deaf people in an outdoor setting. Although our research agreed with educational barriers not posing as the highest threat to access, our research differed in that we found social barriers were limiting access in National Parks. This could be because in the outdoors in general there are not a lot of social groups, whereas places like National Parks are more known to host larger events. This could have also stemmed from participants' knowledge of Yosemite National Park, as the events they hold there are inclusive of the Deaf community and are well advertised.

It is also important to discuss the efforts RMNP has made to increase accessibility to their accessibility for their Deaf visitors. Multiple participants mentioned that they thought RMNP had better access in comparison to some other National Parks. They also explained that this accessibility has gotten better over time. RMNP's collaboration on this project to help identify barriers shows their willingness to uncover new information to better help their visitors. This support is much greater than other National Parks are providing. It is crucial to understand that RMNP's lack of resources discussed is different from staff members not wanting to help, as there is likely an educational and resource barrier for the staff to be able to execute this.

Accessibility Barriers

Accessibility to Information

Participants recommended RMNP to partner with Yosemite to exchange feedback and make necessary improvements. They understood that RMNP may not have the budget to hire a year-round Deaf Services Coordinator, like Yosemite does, but acknowledged that this may be a helpful start for RMNP. Participants believed that the lack of information could be better advertised with social media posts, more brochures, more information available at the park entrances, etc.

Accessibility to Interpretation

Participants noted that it would be most helpful to have an interpreter employed for the park to make the interpreting wait shorter, but also recommend other solutions to aid in faster interpretation. They even suggested a certain time block within a week or day when they would know an interpreter would be there. They all very well understood that we have a national interpreter shortage and that interpreters are expensive to hire. However, to fully reduce this accessibility barrier, an ASL interpreter would need to be hired full-time so that there can always be a method of direct communication. Participants noted that a full-time employee who can interpret would help them to feel more visible. Ultimately, without this in RMNP there will always be a language barrier.

Communication Between the Deaf and Hearing

Visual signage was a commonly brought up theme for mitigating communication breakdowns between hearing and Deaf people. Not only would visual signage be helpful for

Deaf people, but anyone else who does not use English as their first language. A recommendation was to have signs with visuals on them around the park at common visitor areas or anywhere where there could be a safety hazard posed by the environment, animals, etc.

Highlighting Deaf Workers in RMNP

Participants mentioned that advertising to the community that they have a Deaf person on staff would create easier accessibility for the Deaf community, as it would encourage them to go to the park. This information could help increase access and increase the amount of Deaf people who work in our National Parks. Participants also mentioned that more information should be available to the Deaf community on positions they could work in the NPS.

Deaf Education for NPS Workers

Another recommendation from participants was that NPS workers receive training like basic signs and Deaf culture from a member of the Deaf community. Even just basic greetings would help Deaf people to feel more connected to the park. Recommendations included pulling a teacher from a local Deaf school or organization to teach a training session like this at RMNP. This correlates to the study done by Hansen et al., (2014) to have training events for hearing NPS workers. An idea from a participant as to why the NPS may be unaware of the number of Deaf visitors they receive could correlate to the lack of requests they get for interpretation.

Universal Design

It was recommended that the best way to accurately implement universal design would be to have a Deaf person verify all accessibility designs made for their community.

Social Barriers

Participants unanimously, and enthusiastically, agreed on the need to have a Deaf-centric event in RMNP. They discussed an April event, although brought up that the road through RMNP may not be open then, and the weather could cause limited activities. A date in late September in reference to Deaf Awareness Day was also mentioned, although one participant noted that this month can be very busy for Deaf people due to Deaf Awareness Day. Another suggestion was made for a day in August. No matter the exact date of this event, our participants all repeatedly mentioned the need for an event like this. Many noted that they think Deaf people from outside our local area would fly in for this event, just as they do in Yosemite. To mitigate other barriers discussed for this event, it would be necessary to hire enough interpreters, advertise the access pass and provide an educational aspect to this event. Ideas for the educational aspect of this included water filtering, how to start a fire, what do to if you come across an animal on the trail, etc. Although a largely advertised Deaf-centric event would be exciting, the participants noted the need to have regular events that facilitate unity. These findings correlate to DeMare's (2019) research that Deaf-centric events provide less of a barrier than hearing ones.

Recommendations were also made for an ASL club in RMNP. This could be an inclusive club where hearing and Deaf people would be able to hike and chat in a beautiful environment. Yosemite hosts a similar event to this called 'Sign Language for Lunch' and this could be easily adapted at RMNP. Other recommendations included small events like ASL camping, so long as all these events are taught or hosted by a Deaf person. Participants also noted that events RMNP has done like fly fishing classes with an interpreter, is more needed.

Economic Barriers

Recommendations to reduce economic barriers are all centered around the need to advertise the access pass better. An idea from participants was to specifically highlight this at a Deaf event. Other recommendations included posting about it on social media, having signs for it at the entrance of the park and advertising it in the brochures around RMNP.

Educational Barriers

Participants recommended providing educational events to reduce educational barriers for Deaf people. It was a common theme to have participants leaving the park wanting to know more, especially in relation to the animals. Training that includes safety around wild animals was especially important to participants. The most common recommendation for reducing educational barriers was to make sure the public has adequate education on how to access park information. It was frequently mentioned to have adult educational training and kid friendly ones.

Conclusion

There were a few limitations in this study that need to be discussed. The first is that there is always room for interpretation errors when using interpreters. This is why the researcher contacted the participants to ensure their quotes were accurately transcribed. One of the four participants had more information about RMNP and therefore had more involved answers that the average Deaf visitor may not be aware of. All 4 of our participants also had a college-level education, which therefore could have swayed their answers for economic and educational barriers in RMNP. It is also important to note that although we tried to achieve triangulation, we

were only able to secure 4 participants. More participants would be needed for this study to be more representative of the Deaf community. The limited time to conduct this study accompanied by the task of scheduling 5 people collectively for a group discussion proved challenging in finding participants. Additionally, we did purposefully not note participant demographics in this study so as to increase our sample size. Recommendations from participants not only discussed ways to improve their access but improve access for other non-English speakers. This research provided a starting point of examining barriers for Deaf people in RMNP. Although this study was more targeted towards RMNP, as this was a local study and that is the closest National Park, this research can be useful for all National Parks to examine.

References

Bianchi, P., Cappelletti, G. M., Mafrolla, E., Sica, E., & Sisto, R. (2020). Accessible Tourism in

Natural Park Areas: A Social Network Analysis to Discard Barriers and Provide

Information for People with Disabilities. *Sustainability*, *12*(23), 9915.

https://doi.org/10.3390/su12239915

Beck L. & Cable T. (2002). The meaning of interpretation. Journal of Interpretation Research,

7(1), 7-10.

Burck, C. (2005). Comparing qualitative research methodologies for systemic research: The use

of grounded theory, discourse analysis and narrative analysis. *Journal of Family Therapy,*

27(3), 237-262. doi:10.1111/j.1467-6427.2005.00314.x

Burns, N., Paterson, K. & Watson, N. (2009). An inclusive outdoors? Disabled people's

experiences of countryside leisure services. Leisure Studies, 28(4), 403-417.

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., . . . Walker, K.

(2020). Purposive sampling: Complex or simple? research case examples. *Journal of*

Research in Nursing, 25(8), 652-661. doi:10.1177/1744987120927206

Cayton, N. (2010). Summer at Yosemite in Sign. ASL News, 11(4), 1, 11-15. Retrieved from

http://www.communiqueinterpreting.com/pdfs/newsletters/BCCsummer10.pdf

Coco-Ripp, J.A. (2005). Including people who are deaf in recreation. Parks and Recreation, 40(2), 26, 28-33.

Connell, B.R., Jones, M., Mace, R. Mueller, J., Mullick, A., Ostroff, E., Sanford, J., Steinfeld, E., Story, M., & Vanderheiden, G. (1997). The Principles of Universal Design (Version 2.0). Raleigh, NC: North Carolina State University. Retrieved from http://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm

DeMare, A. R. (2019). *Barriers facing deaf and hard-of-hearing people in outdoor education* (Order No. 22620408). Available from ProQuest Dissertations & Theses Global; ProQuest One Academic; Publicly Available Content Database. (2312801494). Retrieved from https://unco.idm.oclc.org/login?url=https://www.proquest.com/dissertations-theses/barriers-facing-deaf-hard-hearing-people-outdoor/docview/2312801494/se-2

Disability access in the National Park System: Oversight hearing before the Subcommittee on National Parks of the Committee on Resources (Serial 109-53), 109 th Cong. 28 (2006a) (testimony of Janice Schacter). Retrieved from http://www.gpo.gov/fdsys/pkg/CHRG-109hhrg27519/html/ CHRG-109hhrg27519.htm

Ham, S.H. & Weiler, B. (2007). Isolating the role of on-site interpretation in a satisfying experience. Journal of Interpretation Research, 12(2), 5-24.

Hansen, E., Ernst, J., & Washburn, J. (2014). Interpretive Accommodations for National Park

    Service Visitors who are d/Deaf or Hard of Hearing. *Journal of Interpretation Research*,

    22(1), 5–32. https://doi.org/10.1177/109258721702200102

Harpers Ferry Center. (2007, November/December). Learning from the experts: Harpers Ferry

    Center, NCR, and C&O Canal host accessibility workshop. HFC on Media, 20, 4-8.

Harpers Ferry Center Accessibility Committee. (2012). *Programmatic Accessibility Guidelines*

    for National Park Service Interpretive Media, Version 2.1. [PDF document]. Retrieved

    from http://www.nps.gov/hfc/accessibility/accessibilityGuideVersion2.1.pdf

Harpers Ferry Center, Division of Interpretive Planning. (1998). Planning for Interpretation and

    Visitor Experience. [PDF document]. Retrieved from

    http://www.nps.gov/hfc/pdf/ip/interp-visitor-exper.pdf

Hunter, J. G. (2012). Towards a Cultural analysis: The need for Ethnography in interpretation

    research. *Journal of Interpretation Research*, *17*(2), 47–58.

    https://doi.org/10.1177/109258721201700204

Jensen, M. T., Chambers, D., & Wilson, S. (2023). The future of deaf tourism studies: An

    interdisciplinary research agenda. *Annals of Tourism Research*, *100*, 103549.

    https://doi.org/10.1016/j.annals.2023.103549

Kelle L. Murphy (2021) Civil Rights Laws: Americans With Disabilities Act of 1990 and

    Section 504 of the Rehabilitation Act of 1973, Journal of Physical Education, Recreation

    & Dance, 92:1, 57-59, DOI: 10.1080/07303084.2021.1844555

Lund-Durlacher, D. (2015). Corporate social responsibility and tourism. In *CSR, sustainability,*

    ethics & governance (pp. 59–73). Springer International Publishing.

    https://doi.org/10.1007/978-3-662-47470-9_4

Malema, M. S., Weilbach, J. T., & Watson, F. G. (2019). Leisure needs as perceived and

    experienced by deaf adults in the North West Province, South Africa. *World Leisure*

    Journal. https://doi.org/10.1080/16078055.2019.1583603

Milling, A.,(2022). The hardest part about being a deaf hiker? everyone else. *Backpacker*.

    https://www.backpacker.com/stories/issues/deaf-hikers-communicating/

National Association for Interpretation. (n.d.). *Mission, vision, and core values*.

    http://www.interpnet.com/nai/About/What_We_Believe/nai/_About/%20Mission_Vision

    _and_Core_Values.aspx?hkey=ef5896dc-53e4-4dbb-929e-96d45bdb1cc1

National Center on Accessibility. (n.d.). Education. Retrieved April 18, 2014 from

    http://www.ncaonline.org/education/index.shtml

National Park Service. (2005-2011). National Park Service Director's Order #6: Interpretation

    and Education. Retrieved from http://www.nps.gov/policy/DOrders/DOrder6.html

National Park Service. (2000-2004). National Park Service Director's Order #42: Accessibility

    for Visitors with Disabilities in National Park Service Programs and Services. Retrieved

    from http://www.nps.gov/policy/dorders/DOrder42.html

National Park Service, Interpretive Development Program. (n.d.). About Interpretation.

    Retrieved from http://idp.eppley.org/about-interpretation

National Park Service, Chesapeake & Ohio Canal National Historical Park. (2007, November).

    Improving exhibits for visitors with disabilities: Harpers Ferry Center initiative to

    enhance programmatic accessibility in museum exhibits. Workshop on Accessibility

    Review of Exhibits. Workshop conducted at the U.S. Fish and Wildlife Service National

    Conservation Training Center, Shepherdstown, WV. Retrieved from

    http://www.nps.gov/hfc/pdf/accessibility/ choh-access-report-nov2007.pdf

National Recreation and Park Association. (1999). NRPA position statement on inclusion 87 as

    adopted by the NRPA Board of Trustees as an NRPA Policy, October 24, 1999. Ashburn,

    VA: National Recreation and Park Association. Retrieved from

    http://www.nrpa.org/uploadedFiles/nrpa.org/Advocacy/Resources /Position-Statement-

    Inclusion.pdf

Park, M. A. 1000 U. H. 36 E., Fridays, C. 80517 P. 970 586-1206 T. I. O. is open year-round: 8:00 a m- 4:00 p m daily in summer; 8:00 a m- 4:00 p m M. -, & Us, 8:00 a m-12:00 p m S. - S. in winter R. T. R. R. status:586-1222 C. (n.d.). *Accessibility - Rocky Mountain National Park (U.S. National Park Service)*. Www.nps.gov. https://www.nps.gov/romo/planyourvisit/accessibility.htm

Park, M. A. 1000 U. H. 36 E., Fridays, C. 80517 P. 970 586-1206 T. I. O. is open year-round: 8:00 a m- 4:00 p m daily in summer; 8:00 a m- 4:00 p m M. -, & Us, 8:00 a m-12:00 p m S. - S. in winter R. T. R. R. status:586-1222 C. (n.d.). *Rocky Mountain National Park to host "Fly Fishing in the Rockies," a reduced barriers fishing event on Tuesday, August 16, 2022 - Rocky Mountain National Park (U.S. National Park Service)*. Www.nps.gov. https://www.nps.gov/romo/learn/news/rocky-mountain-national-park-to-host-fly-fishing-in-the-rockies-a-reduced-barriers-fishing-event-on-tuesday-august-16-2022.htm#:~:text=In%20coordination%20with%20the%20National%20Sports%20Center%20for

Peterschmidt, D. (2023, February 1). Meet The Blind Birder Reimagining Accessibility In The Outdoors. *Science Friday*. https://www.sciencefriday.com/segments/blind-birder-accessible-colombia/

Powell, R., Depper, G. L., & Wright, B. A. (2017). Interpretation Training needs in the 21st century: A Needs assessment of interpreters in the National Park Service. *Journal of Interpretation Research*, 22(2), 19–34. https://doi.org/10.1177/109258721702200203

Registry for Interpreter for the Deaf. -CODE OF PROFESSIONAL CONDUCT NAD-RID CODE OF PROFESSIONAL CONDUCT Scope. (2005). https://rid.org/wp-content/uploads/2023/03/NAD_RID-Code-of-Professional-Conduct-508-Accessible.pdf

Rhineberger, G. M., Hartmann, D. J., & Van Valey, T. L. (2005). Triangulated research designs -- a justification? *Journal of Applied Social Science, 22*(1), 56-66. doi:10.1177/19367244052200106

Rotar, M. (2020). Between marginalisation and integration: practising deaf sports in interwar Romania. *Sport in Society*. https://doi.org/10.1080/17430437.2020.1820990

Rauterberg, M. (2021). *Culture and Computing. Design Thinking and Cultural computing: 9th International Conference, C&C 2021, Held as Part of the 23rd HCI International Conference, HCII 2021, Virtual Event, July 24–29, 2021, Proceedings, Part II*. Springer Nature.

Skulski, J. (2007, October). Designing for inclusive play: Applying the Principles of Universal Design to the playground. Bloomington, IN: National Center on Accessibility, Indiana

University-Bloomington. Retrieved from

http://www.ncaonline.org/resources/articles/playground-universaldesign.shtml

Stats Report Viewer. (n.d.).

https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%

20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=ROM

Stats Report Viewer. (n.d.).

https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%

20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=YOSE

Werner, J. P., Kempf, F. M., & Corinth, T. (2019). Can You Hear Me? A Research of Touristic

Demand from and Supply for Deaf Travelers. In *CSR, sustainability, ethics &*

governance. Springer International Publishing. https://doi.org/10.1007/978-3-030-15624-

4_5

Zajadacz, A. (2012). Sources of tourist information used by Deaf people. Case study: the Polish

Deaf community. *Current Issues in Tourism*, *17*(5), 434–454.

https://doi.org/10.1080/13683500.2012.725713

Appendix A.

Date: 10/30/2023
Principal Investigator: Madeline Dannewitz

Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**

Action Date: 10/30/2023

Protocol Number: 2309052848

Protocol Title: The Deaf experience in National Parks with an emphasis on Rocky Mountain
                               National Park

Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and
determined your project to be exempt under 45 CFR 46.104(d)(702) (703) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS
OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests
(cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or
observation of public behavior (including visual or auditory recording) if at least one of the
following criteria is met: (i) The information obtained is recorded by the investigator in such a
manner that the identity of the human subjects cannot readily be ascertained, directly or through
identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside
the research would not reasonably place the subjects at risk of criminal or civil liability or be
damaging to the subjects' financial standing, employability, educational advancement, or
reputation; or (iii) The information obtained is recorded by the investigator in such a manner that
the identity of the human subjects can readily be ascertained, directly or through identifiers
linked to the subjects, and an IRB conducts a limited IRB review to make the determination
required by 45 CFR 46.111(a)(7).

Category 3 (2018): BENIGN BEHAVIORAL INTERVENTIONS IN CONJUNCTION WITH THE
COLLECTION OF INFORMATION FROM ADULT SUBJECTS through verbal or written
responses
(including data entry) or audiovisual recording if the subject prospectively agrees to the
intervention and information collection and at least one of the following criteria is met: (A) The
information obtained is recorded by the investigator in such a manner that the identity of the
human subjects cannot readily be ascertained, directly or through identifiers linked to the
subjects; (B) Any disclosure of the human subjects' responses outside the research would not
reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects'
financial standing, employability, educational advancement, or reputation; or (C) The

information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7). For the purpose of this provision, benign behavioral interventions are brief in duration, harmless, painless, not physically invasive, not likely to have a significant adverse lasting impact on the subjects, and the investigator has no reason to think the subjects will find the interventions offensive or embarrassing. Provided all such criteria are met, examples of such benign behavioral interventions would include having the subjects play an online game, having them solve puzzles under various noise conditions, or having them decide how to allocate a nominal amount of received cash between themselves and someone else. If the research involves deceiving the subjects regarding the nature or purposes of the research, this exemption is not applicable unless the subject authorizes the deception through a prospective agreement to participate in such research.

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).

- You make changes to the research personnel working on this study (add or drop research staff on this protocol).

- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.

- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Interim IRB Administrator, Chris Saxton, at 970-702-5427 or via e-mail at chris.saxton@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http:// hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and-compliance/institutional-reviewboard/.

Sincerely,
Michael Aldridge
Interim IRB Administrator

University of Northern Colorado: FWA00000784

Appendix B.

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
UNIVERSITY OF NORTHERN COLORADO

Project Title: The Deaf Experience in the National Parks with an Emphasis on Rocky Mountain National Park
Researcher: Madeline Dannewitz
Phone: 707-672-9817   E-mail: dann8500@bears.unco.edu

Purpose and Description: The primary purpose of this study is to gain insight on the experiences of those who are Deaf in our National Parks. Over 2 different interviews, you will be asked a series of open-ended and semi-structured interview questions. Interviews will be held online over zoom so that the meeting can be recorded and transcribed. An interpreter will be present at both interviews. To avoid interpretation errors, any direct quotes from you will be approved by you through an email post-interview. Interview 1 and interview 2 will at max take 1 hour long to conduct.

For interview 1, you will be interviewed individually. Questions will cover topics such as your positive and negative experiences in National Parks, ways in which you think the Parks could improve accessibility, events you would participate in, etc.

For Interview 2, you will be interviewed with all participants collectively in a focus group. Your responses based on your initial individual interview will help guide the questions for the second interview.

At the end of the interviews, we would be happy to share your data with you at your request. We will take every precaution to protect your anonymity. You will be given a participant number to replace your name for this study. Only the lead investigator and her mentor will know the name connected with a subject number and when we report data, your name will not be used. Data collected and analyzed for this study will be kept in a password protected computer file on a locked computer, which is only accessible by the researcher and her advisor.

Potential risks in this project are minimal. You will be given a $50 Gift Card to REI following the completion of the individual interview, group interview and any potential direct quote approval questions via email.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact the Office of Research and Sponsored Programs, University of Northern Colorado, at irb@unco.edu or 970-351-1910.

Subject's Signature   Date

Researcher's Signature   Date

Appendix C.

Individual Interview Questions:

What are the terms you would prefer we use for this research to describe Deaf and Hard of Hearing?

How much time have you spent in Rocky Mountain National Park? What about other National Parks?

Tell me about a positive and negative experience you have had in Rocky Mountain National Park that relates to Deafness.

Regarding the laws that govern accessibility in our National Parks, the NPS service has stated, "park visitors who have physical, sensory or cognitive disabilities have legally established civil rights to receive the same information and context that NPS interpretive media products have always provided to their fellow citizens". For this research paper, how do you think we should address Deafness being lumped into the same category as a disability?

The purpose of this project is to investigate the Deaf perspective in our National Parks, specifically Rocky Mountain National Park. There is little to no research that exists on this topic. Do you think the lack of research on this topic correlates to the lack of need for it?

In a research study done in Alaska about barriers for Deaf people in outdoor settings, 4 topics were explored. These are economic barriers, social barriers, legal/accessibility barriers, and educational barriers. The topics from this research have not been explored in National Parks specifically.

Social barriers-

The research states that a lack of outdoor Deaf groups and lack of encouragement to succeed is the main social barrier for Deaf hikers. Do you think Deaf focused classes or events would provide less of a barrier than hearing ones?

Yosemite National Park is known for its inclusion of the Deaf Community. It is the only National Park to employ a year-round position of a Deaf Services Coordinator. Yosemite National Park hosts an event each year where Deaf hikers around the world come to the park to make new friends and enjoy the scenery together for a day. Would you attend an event like this in Rocky Mountain National Park?

Rocky Mountain National Park has hosted some events called "reduced barrier events" designed to increase accessibility for people with disabilities and defined by the National Park Services where wheelchair accessible trails and an ASL interpreter is provided. Would you attend an event like this? Why or why not?

Accessibility Barriers-

Rocky Mountain National Park has interpretive services available if requested at least a month in advance. Have you used these services before, and if not, would you use them or why not?

Rocky Mountain National Park stated that the only requests from their Deaf Visitors are for interpretive services, and even these requests are very slim. Why do you think this is? Do you think this is due to a lack of need for services, or a lack of knowing how and where to access this information?

The very little research that does exist within this field focuses on how the NPS workers interact with the Deaf community rather than how the Deaf community interacts with the National Parks and its members. Should there be more training on how NPS employees interact with the Deaf community, and how would this be implemented?

Universal Design is implemented for the purpose of attempting to create the same experience for anyone visiting a National Park. To make sure Universal Design is being implemented, do you think it would be beneficial to incorporate a team of accommodation and accessibility receivers to verify the design?

Are there any ways you can think of to have National Parks, or Rocky Mountain National Park, improve communication between hearing hikers and deaf hikers?

Economic Barriers-

Economic barriers were listed as one of the most significant barriers to Deaf people in outdoor settings. However, this mainly fell under the category of the need to hire more interpreters, rather than personal finances limiting outdoor activities. The National Park Service gives a Free Access Pass to Deaf people. Is this something that you think a lot of Deaf people know about? How is the accessibility to this information?

Are there any other economic barriers that would affect your involvement in the National Parks?

Educational Barriers-

It was found in a research study that educational barriers were not very impactful for Deaf people outdoors. Do you think this is the same in National Parks?

If you had to list these 4 barriers in order of 1, greatest barrier, to 4, smallest barrier. Where would you rank social, economic, accessibility and educational. Please explain why.

Is there anything else you would like to say to conclude this interview?

Appendix D.

Group Discussion:

So, in the individual interviews we explored 4 main categories and those were social, accessibility, economic and educational barriers. We're going to go through those 4 topics again together:

Socia Barriers-
In the individual interviews when asked if a deaf focused event would be interesting, every participant said yes. Deaf Awareness Day- What would you recommend happens on that day? What month do you think would be best? Would Sept be good because of 29th Deaf Awareness Day and the roads to the park are still open and not peak season?

Accessibility Barriers-
In the individual interviews there was a wide range of responses when it came to accessibility to RMNP park information. So I wanted to open the floor here for a discussion on accessibility in RMNP. What do you know about accessibility in the park for Deaf people? What is your current awareness/current knowledge of accessibility in the park? What are your recommendations for accommodations for Deaf people? "How many of you already knew that before she told you?"

Signage- It was recommended in the individual interviews that some picture signage without written language in RMNP would be useful. Let's discuss some more ideas of what that could look like. Can you give me specific examples of signs that you would like to see added? For example, signs related to animals, safety, animal protection, safety from animals are some examples. Have any of you seen those signs, do they exist? What would you recommend for someone who English is not their first language?

Economic Barriers-
No one really listed any economic burdens with visiting RMNP because of the Access Pass. Due to the PRICE. Any challenges with the price? Do you know other people that might have a financial barrier? Do you know other people who are Deaf who have expressed a financial barrier of some kind?

Educational Barriers-
When asked if there were any educational barriers for going to National Parks some participants noted that being educated on how to access information was more important than one's personal education limiting the recreation in the National Parks. Do you think most of the deaf people who go to national parks have college degrees? Or do you think people who don't have college

degrees go to national parks? Do you think they have the same experiences in the park or is it different?

Conclusion-
When asked to separate the greatest barrier into the smallest barrier for recreation in the national parks a lot of participants noted how intertwined all these categories are with each other. Can we discuss it more? Everyone said in the individual interviews that all topics were closely intertwined. Accessibility was the biggest barrier followed by social interactions, but all the categories overlapped with each other. Can we talk more about it?

Is there something I don't know, or I haven't asked you that you wished I asked you? Or something we haven't talked about that you think is really important information for this research?