

Madilynn Marie Nolen

Candidate

Geography & Environmental Studies

Department

This thesis is approved, and it is acceptable in quality and form for publication: *Approved by the Thesis Committee:*

Melinda Morgan, J.D., Chairperson

Maria Lane, Ph.D.

Chris Duvall, Ph.D.

**NEW MATERIALISM AND PUBLIC LANDS: OPPORTUNITIES FOR HUMAN AND
NONHUMAN INTERACTIONS AT PETROGLYPH NATIONAL MONUMENT**

by

**MADILYNN MARIE NOLEN
BACHELOR OF SCIENCE, NORTHERN ARIZONA UNIVERSITY, 2021**

THESIS

Submitted in Partial Fulfillment of the
Requirements of the Degree of

**Master of Science
Geography**

The University of New Mexico
Albuquerque, New Mexico

DECEMBER, 2024

DEDICATION

To Petroglyph National Monument, a sacred, dynamic landscape.

To David and Brandi Nolen, who have supported me through everything and given me the room
and time to achieve my goals.

ACKNOWLEDGMENTS

Endless thanks to Melinda Morgan, who has kept me on track and motivated me throughout this project. I would not have made it through this alone.

Thanks to Jordan Wray, whose flexibility and patience was instrumental to the completion of this project.

This project would not have been possible without the cooperation and support of the staff and volunteers of Petroglyph National Monument. Their patience, creativity, and dedication have inspired me beyond words.

This project was conducted on native land that is sacred to numerous Indigenous communities in and around the Albuquerque area. Their history and culture are inextricably linked with the land of Petroglyph National Monument.

NEW MATERIALISM AND PUBLIC LANDS: OPPORTUNITIES FOR HUMAN AND NONHUMAN INTERACTIONS AT PETROGLYPH NATIONAL MONUMENT

by

Madilynn Nolen

B.S., Secondary Education: History, Northern Arizona University, 2021

ABSTRACT

Petroglyph National Monument (PETR) resides at the intersection of geology, urban development, and environmental preservation. As the site of convergence for these complex systems, this National Park site is an example of what kinds of interactions occur between humans and nonhumans and how these interactions mediate our broader understanding of material world. This project utilizes literature from more-than-human geographies and new materialism to examine how these interactions inform the management strategies of PETR. Through the interviews of 15 Volunteers-in-Parks and a focus group of five PETR employees, this project investigates what nonhuman entities are present on and around the monument, what influence they have on the monument, and what these interactions mean for future land management. It concludes with an examination of the different ways in which nonhumans at PETR compel human engagement with the more-than-human and how these interactions help bridge the disconnect between humans and the material world.

TABLE OF CONTENTS

TABLE OF CONTENTS	VI
LIST OF FIGURES.....	VIII
LIST OF TABLES.....	IX
CHAPTER 1: INTRODUCTION.....	1
RESEARCH QUESTION AND DESIGN:	2
CHAPTER 2: BACKGROUND	5
CULTURAL AND NATURAL SIGNIFICANCE	5
A SUITABLE AND FEASIBLE ADDITION TO THE NPS	11
CO-MANAGEMENT: A VISION FOR THE FUTURE.....	12
CHAPTER 3: LITERATURE REVIEW	16
NATURE/SOCIETY BINARY	16
MORE-THAN-HUMAN GEOGRAPHIES	20
NEW MATERIALISM.....	22
CHAPTER 4: METHODS	28
INTERVIEWS.....	28
<i>Selection Process</i>	29
<i>Interviews</i>	30
FOCUS GROUP	33
CHAPTER 5: FINDINGS.....	36
THE LANDSCAPE OF PETR	37
<i>Geology</i>	37
<i>Desert Climate</i>	39
<i>Wildlife and Vegetation</i>	40
THE CULTURAL RESOURCES OF PETR	43
<i>Cultural Relevance and Spirituality</i>	43
<i>Petroglyphs</i>	45
<i>Viewscape</i>	49
PETROGLYPH NATIONAL MONUMENT	52
<i>Signage and Maps</i>	53
<i>Designated Trails</i>	55

<i>National Park Service Site Status</i>	56
<i>Visitors</i>	58
THE DEVELOPMENT AROUND PETR	61
<i>Struggles</i>	62
<i>Advantages</i>	64
THE NEIGHBORHOODS OF PETR	65
<i>Neighbors and their Dogs</i>	65
<i>Social Trails</i>	68
FINDINGS SUMMARY	70
CHAPTER 6: DISCUSSION	71
PETROGLYPHS, WILDLIFE, THE VIEW: THINGS THAT MAKE YOU THINK	71
TRAILS, SIGNS, STATUS: NONHUMANS THAT GUIDE US.....	74
NEIGHBORHOODS: COMPETITIVE ALLIES	76
VOLUNTEERS-IN-PARKS PROGRAM: A MORE-THAN-HUMAN AGENT	78
RESEARCH LIMITATIONS	79
FUTURE MANAGEMENT RECOMMENDATIONS	81
CHAPTER 7: CONCLUSION	85
APPENDIX: MANUSCRIPT DRAFT	86
REFERENCES	95

LIST OF FIGURES

FIGURE 1: MAP AND LOCATION OF PETR. PROVIDED BY CHANTEIL WALTER, “PETROGLYPH NATIONAL MONUMENT VISITOR USE MANAGEMENT PLAN/ENVIRONMENTAL ASSESSMENT,” 2018.....	5
FIGURE 2: GRAPHIC OF REVERSE TOPOLOGY. PROVIDED BY NPS, “VOLCANIC INVERTED TOPOGRAPHY,” 2023.	6
FIGURE 3: REVERSE TOPOLOGY AS SEEN FROM THE PETROGLYPH VIEWING TRAIL IN RINCONADA CANYON. NOLEN 2024.	7
FIGURE 4: THE THREE SISTER FROM ABOVE THE NORTH DIVERSION CHANNEL ON THE EAST SIDE OF ALBUQUERQUE. NOLEN 2024.	8
FIGURE 5: FOUR OF THE VOLCANOES IN THE BACKGROUND OF GROWING DEVELOPMENTS. NOLEN 2024.	8
FIGURE 6: PETROGLYPHS NEXT TO HISTORIC BULLET HOLES IN RINCONADA CANYON. NOLEN 2024.....	12
FIGURE 7: MACAW PETROGLYPH, THE MAIN FEATURE OF MACAW TRAIL IN BOCA NEGRA CANYON. NOLEN 2024.	46
FIGURE 8: CHRISTIAN CROSS PETROGLYPHS AS SEEN IN RINCONADA CANYON. NOLEN 2024.....	47
FIGURE 9: VIEW OF THE SANDIA MOUNTAINS FROM THE VOLCANOES DAY USE AREA PICNIC AREA. NOLEN 2024.....	49
FIGURE 10: NORTH SIGHTLINE FROM THE VOLCANOES DAY USE AREA TO MOUNT TAYLOR OBSCURED BY THE AMAZON FULFILLMENT CENTER. NOLEN 2024.	50
FIGURE 11: VIEW OF THE TAYLOR RANCH NEIGHBORHOOD FROM THE TOP OF THE MESA POINT TRAIL IN BOCA NEGRA CANYON. NOLEN 2024.	61
FIGURE 12: PROMINENT SOCIAL TRAIL AT THE VOLCANOES DAY USE AREA, ALSO FEATURING LAVA ROCK WITH DAMAGED PATINA AND A SIGN REDIRECTING VISITORS TO THE CORRECT TRAIL. NOLEN 2024.	69

LIST OF TABLES

TABLE 1: SEMI-STRUCTURED INTERVIEW QUESTIONS USED WITH VIPS	32
TABLE 2: QUESTIONS EMPLOYED DURING FOCUS GROUP WITH LAND MANAGERS	34
TABLE 3: THEMES AND CODES.....	36

CHAPTER 1: Introduction

To the west of Albuquerque are thousands of images etched into miles of ancient lava rock. These images and formations uniquely blend culture and geology to develop a rich history that is deeply relevant to Indigenous groups in the Southwest, those who live in the nearby City of Albuquerque, and anyone lucky enough to have the opportunity to visit. This area is known today as Petroglyph National Monument (PETR) and features over 25,000 images, making it one of the largest petroglyph sites in the country (U.S. Congress 1990). This site was included in the National Park Service (NPS) as a National Monument to protect these images and is dedicated to preserving Puebloan history and culture, conserving the delicate desert environment, and providing recreation and educational opportunities (Walter 2018). Petroglyph National Monument faces many challenges in meeting these goals, but none so timely as the encroaching development of the west side of Albuquerque. As more humans move into the area, the monument is forced to continually adjust, and its resources are increasingly placed at risk. The staff of PETR are constantly developing new techniques to better manage the human visitors to the monument and to help maintain the well-being of the site's resources, including the petroglyphs, wildlife, viewscape, and much more.

The growth of the City of Albuquerque bordering PETR offers the opportunity to examine how natural resource managers and their volunteers both intuitively and with intention employ concepts from geography, including post-humanist theories, new materialism, and related fields, as they advocate for elements of the monument in a culture that privileges the human and presumes access to public lands. This project investigates the land management strategies of PETR and identifies how the policies and methods of the staff and volunteer

program, Volunteers-in-Parks (VIP) engage post-humanist concepts and ideas, including those from new materialism.

Research Question and Design:

This project seeks to answer the question: how does Petroglyph National Monument interact with the more-than-human to achieve its goals of environmental conservation and community education? To answer this question, this research utilizes two main forms of data collection: semi-structured individual interviews and a focus group. The interviews were conducted during the daily routines of 15 Volunteers-in-Parks (VIPs) and collected data on their mindsets, goals, values, and opinions about PETR as well as their positions as stewards of the land. The focus group was conducted with five PETR employees and focused on official legislation in the monument and future management plans. All research was developed and conducted to empower participants and keep the results as relevant and as useful to the monument as possible (Savin-Baden and Major 2012).

This thesis uses the theoretical frameworks of new materialism and related work from more-than-human geographies to examine the lived experiences of VIP participants and PETR staff. New materialism is perhaps best understood by contrasting it with the current or “old” materialism prominent in the current and dominant culture. In an “old” materialist understanding of the world, humans are presumed to exist separate from and superior to nature (Norman 2021). This separation justifies the belief that humans have not only the right but often the duty to subjugate nature to their needs and desires (Norman 2021). Geographers and other scholars have challenged this binary with many different theories and approaches (Braun and Castree 1998). Working to decenter the human and instead examine the interconnected nature of reality, new materialism and more-than-human geographies recognize and address the agency of entities like

petroglyphs, trails, and signs. In this case, a new materialist lens was applied to PETR to evaluate its current nonhuman involvement and to explore opportunities for future engagement.

This thesis is organized into seven chapters followed by an appendix, draft manuscript version of the research that is being prepared for submission to the peer-reviewed publication *The Parks Stewardship Forum*. Following this introduction, Chapter 2 reviews PETR by establishing its foundations as a national monument and providing a background on the resources of the site. Chapter 3 outlines several post-humanist theories including more-than-human geographies and new materialism. This project's use of both qualitative interviews and one focus group, as well as its methodology is outlined in Chapter 4. Chapter 5 details the relevant findings from this data collection coded during the summer of 2024. Finally, Chapter 6 provides a discussion examining how the more-than-human is reflected, thought about, and considered in the findings and PETR goals and management strategies. This work concludes in Chapter 7.

In Chapters 6 and 7, the deep respect and care for the more-than-human on PETR is revealed. Monument representatives have taken on the responsibility of sharing the value of the more-than-human with visitors through several strategies and approaches. By encouraging its visitors to decenter themselves from their experiences on the monument, PETR creates new opportunities to achieve its goals of preservation and education. The monument uses its cultural resources to draw visitor's attention to the material world. Visitors are then encouraged in these connections with the help of entities such as trails and signs, which provide guidance on how to best engage with the nonhumans of the monument. The potential benefits of these interactions cannot be understated and are specifically addressed through PETR's strategies for working with its surrounding neighborhoods, which offer several opportunities for the formation of long-lasting and mutually beneficial relationships between humans and nonhumans. The efficacy of

these relationships is already exemplified by the VIP program, an entity with wide-reaching and deeply effective impact on the monument which provides an impressive example of how to successfully reconnect with the more-than-human off the page and in the real world.

CHAPTER 2: Background

The location for this study is Petroglyph National Monument (PETR) in Albuquerque, New Mexico. Its creation and purpose serve as the foundations of the investigation into how humans honor and collaborate with the more-than-human. For a site to be considered eligible for inclusion under the National Park Service (NPS), it must (1) possess cultural or natural significance that is nationally relevant, (2) be a suitable and feasible addition to the NPS and, (3) not be in the jurisdiction of or eligible for protection from any agency or group other than the NPS (Comay 2022). PETR achieves each of these markers, albeit, occasionally in unique ways.

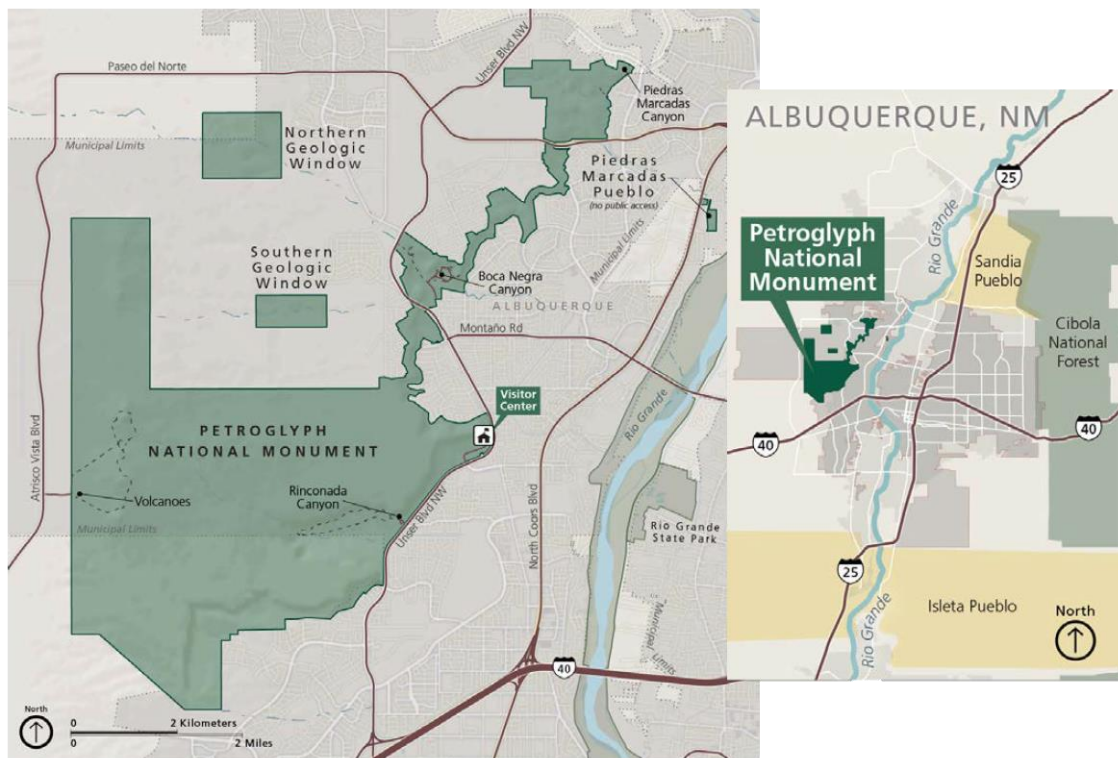


Figure 1: Map and location of PETR. Provided by Chanteil Walter, “Petroglyph National Monument Visitor Use Management Plan/Environmental Assessment,” 2018.

Cultural and Natural Significance

As shown in Figure 1, PETR stretches 17 miles northeast to southwest along the western edge of Albuquerque and protects one of the largest and most dense petroglyph sites in North

America with over 25,000 confirmed images (NPS 2021). This monument is a geologically unique landscape with a natural beauty along with its cultural significance. The monument border is guided by the West Mesa volcanic escarpment and includes this geologic formation as well as five cinder cone formations farther to the west, known locally as the Three Sisters (NPS 1991).

The West Mesa is a classic example of reverse topology. This type of landform is extremely common in areas with frequent volcanic activity, such as the Southwest. During eruptions, lava flows and other volcanic deposits follow topographic low points of surrounding areas, such as valleys or riverbeds, and fill them in. These volcanic materials, now called a caprock, are usually more resistant to erosion than the material underneath and around them and therefore break down much more slowly as time passes. As a result of this process, the lava-filled valleys eventually become new mesas and the former mesas erode to become new valleys, reversing the topography of the area (NPS 2023). A visual of this process is provided in Figure 2.

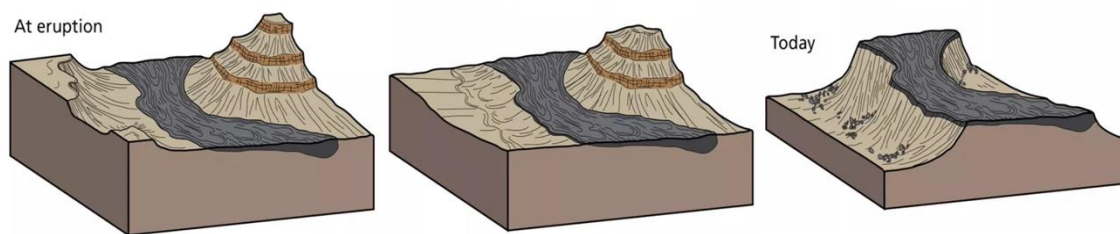


Figure 2: Graphic of reverse topology. Provided by NPS, "Volcanic Inverted Topography," 2023.

On the West Side, the process of reverse topology began with the eruptions of a fissure volcano that occurred between 150,000 and 200,000 years ago. These eruptions created the Three Sisters and sent a wall of lava eastward which filled an ancient valley and cooled into what is now the West Mesa. As the surrounding soft sediments eroded, the basalt caprock was unearthed and its edge collapsed into miles of boulders to make the escarpment what it is today

(NPS Jan 30, 2018). An example of reverse topology as seen in the Rinconada Canyon at PETR is shown in Figure 3. This image shows how the soft, sandy interior of the canyon is contrasted by the dark lava rock escarpment.



Figure 3: Reverse topology as seen from the petroglyph viewing trail in Rinconada Canyon. Nolen 2024.

While a volcanic landscape may not be distinctive in the Southwest, the age of these formations and their proximity to the city are. The Three Sisters are some of the youngest and most well-preserved cinder cones in the world and their proximity to the Albuquerque urban center makes them uniquely accessible (New Mexico Museum of Natural History & Science n.d.). They are visible from every part of the city, see Figure 4, and feature in every resident's daily life. To the Indigenous groups native to Albuquerque and the surrounding areas they have always been a deeply spiritual part of the world, vital for pilgrimages and ceremonies (Anschuetz et al. 2002). The volcanoes are often associated with the idea of human emergence into this world, and the escarpment is considered "a physical manifestation of how Mother Earth labored in a painful birthing process" to create the Rio Grande rift valley and beyond (Anschuetz et al.

2002, 3.31). The view from the escarpment also showcases the geology of the whole region, with many of the surrounding mountains and other impacts of the Rio Grande rift visible.



Figure 4: The Three Sister from above the North Diversion Channel on the east side of Albuquerque. Nolen 2024.

The fact that the volcanoes and escarpment are located so close to the city of Albuquerque offers opportunities for public education that would otherwise be unobtainable and makes community outreach and engagement for the monument much more achievable. Although, this proximity also often changes the aesthetic of the monument's resources, as can be seen in Figure 5, which features four of the volcanoes in the background of new housing developments. These developments are within two miles of the Volcanoes Day Use Area, so close that it is possible to see the monument's trails from these roads.



Figure 5: Four of the volcanoes in the background of growing developments. Nolen 2024.

The geology of the West Mesa also fostered the special conditions for the creation of petroglyphs. While petroglyphs are common across the Southwest, they cannot be created just anywhere. Petroglyphs are not drawn or painted like pictographs but are rather “pecked” directly onto the surface of a rock using a chisel and hammerstone to remove a thin, dark layer of patina, or desert varnish, and reveal the lighter rock beneath in the shape of any image (NPS 2021). True to its name, this desert varnish occurs most regularly in arid climates, and it takes thousands of years to form just a thin layer. It is very fragile, and any disturbance to a rock's position risks destroying all its varnish. All 17 miles of basalt boulders along the escarpment are covered in this patina, which has allowed humans in the area to create over 25,000 petroglyphs over the years (NPS 2021). It is estimated by PETR that the creation of the majority of these petroglyphs correlates to the increase in population in the area and the development of new pueblos, which occurred around 1300 CE and lasted into the late 1680s CE, but a small percentage potentially date as far back as 2000 BCE, over 4,000 years ago (NPS 2021). Another small percentage were created much more recently by Spanish settlers and feature such images as Christian crosses, sheep, brands, and even individual names and dates (NPS 2021). The older petroglyphs present a diverse range of subjects, including animals such as lizards, deer, mountain lions, roadrunners, hummingbirds, various insects, many faces, masks, costumes, handprints, and much more. The meaning behind the petroglyphs is intentionally left ambiguous by PETR to respect the preferences of tribal consultants, who have often said, “no matter what you say, it won’t actually be the right thing” (Great Divide Pictures 2014). Petroglyph National Monument works closely with the 29 tribes who traditionally consider the West Mesa area important to their cultures to ensure that monument policies and decisions do not contradict tribal priorities (Walter 2018). Despite this ambiguity, however, there are some consistencies that are important to note. Most of

the petroglyphs at PETR point northwest in the direction of Chaco Canyon, highlighting how the physical context of each one is an important part of its meaning (Anschuetz 2002). Many petroglyphs were created to specifically reference their spatial orientation, position in the world, or even other petroglyphs nearby. In other words, the petroglyphs are connective. (Anschuetz et al. 2002).

Connection and community engagement is a key goal of the NPS and so is a major focus of PETR. The NPS has made significant efforts to be inclusive to everybody interested in interacting with natural spaces and to create an experience that replicates the historic environments of these sites as closely as possible (Force and Forester 2002). However, NPS sites sometimes struggle with how exactly to offer these experiences and often rely on the concept of an “untouched” wilderness, which is more fantasy than reality. This mentality is based on the virgin land myth, which has simply never existed. There have been indigenous peoples on all lands included under the NPS for thousands of years. This stereotype and native erasure spreads the harmful misconception that before European settlers arrived in the Americas the land there was pristine and unaltered. This fiction intentionally disregards indigenous peoples to undermine native land claims and to downplay the intense, specific, and intentional modifications indigenous people have made to their lands for generations (Williss 1985). All NPS lands are native lands. They were cleared of a native presence, appropriated by the US government, rebranded as pristine, and sold to the American public as a playground. However, despite these rocky beginnings, the NPS today has both the chance and—more importantly—the desire to preserve and share America’s natural spaces. PETR, like many other NPS sites, is actively working against these outdated misconceptions to convey to its visitors a fuller, more authentic picture of the monument's history.

A Suitable and Feasible Addition to the NPS

A site is a *suitable* addition to the NPS if it features a culturally or naturally significant resource that is insufficiently represented in the system (Comay 2022). In the 1990 enabling legislation that created PETR, Congress stated that: “The National Park System has no unit established for the specific purpose of protecting, preserving, and interpreting prehistoric and historic rock art” (U.S. Congress, 272). Many other sites may feature petroglyphs, but PETR was the first to be designated specifically in recognition of the petroglyphs.

A site that is *feasible* addition to the NPS is one large enough to protect the resource, allows for long-term protection and public use of the resource, and is affordable to manage (Comay 2022). The mesa top was first considered for development in the 1960s, but through the lobbying of the Save the Volcanoes activist group, the City of Albuquerque was convinced to purchase the land of the cinder cones and 4,000 acres of the surrounding area from the Bureau of Land Management and private owners (NPS Jan 31, 2018; Funk and Schmader 2019). By the 1980s this land acquisition had expanded to a total of 9,205 acres and was used to create some of the first regional parks in the area including Volcano Park and Indian Petroglyph State Park, both of which were later incorporated into PETR (Funk and Schmader 2019). Simply preventing development on the mesa top, however, proved insufficient. The area of the volcanoes and escarpment had been known for decades as a popular spot for dumping trash, off-roading, and shooting (Froeschauer 1994). Many petroglyphs have been damaged by gunfire, either during

military training exercises in the 1940s or more recently through amateur target practice (Froeschauer 1994). Examples of this damage can be seen in Figure 6.



Figure 6: Petroglyphs next to historic bullet holes in Rinconada Canyon. Nolen 2024.

Friends of the Albuquerque Petroglyphs (FOTAP), a group dedicated to the preservation of the petroglyphs, had already worked to place the escarpment on the National Registrar of Historic Places in 1986, but soon it pushed for even more protections (Ruscavage-Barz 2007). The group ran a wildly impactful information campaign from the late 1970s through the early 1990s and successfully secured Congressional authorization for the creation of PETR, one of only 21 National Monument sites in the country to be created by Congressional action and not a presidential decree according to the US code.

Co-management: A Vision for the Future

This chapter has shown how PETR is a feasible addition to the NPS that possesses cultural and natural significance unique to the system and therefore meets the first two

stipulations for inclusion into the NPS. However, how PETR achieves the third requirement, that a site not be eligible for protection from or within the jurisdiction of any other agency or group than the NPS, is less obvious.

Despite the City of Albuquerque's efforts to create protections for the resources during the late 20th century by establishing numerous state and city parks, the petroglyphs were still at risk (Ruscavage-Barz 2007). The monument's designation was secured in late June of 1990, but it featured some unique stipulations. Rather than buying all of the land on the West Mesa from the City and implementing universal federal regulations, PETR was instead chosen to embody goals of cooperation and co-management to honor the work the City of Albuquerque had already put into preserving the area of the West Mesa (NPS Jan 31, 2018). The enabling legislation for the monument outlines how PETR is expected to cooperate equally with the City on issues of facilities, future land acquisition, finances, programming, etc. (U.S. Congress 1990). It was Congress's hope that the implementation of these unique governing strategies at PETR might act as an example for the future of similar co-management opportunities throughout the NPS (U.S. Congress 1990).

Today, this agreement has the City continuing to manage Boca Negra Canyon, the most visited section of the monument with 85% of visitors (NPS Jan 31, 2018). Meanwhile, the federal side of the management team maintains the Volcanoes Day Use Area, formerly Volcano Park, in addition to the sections of the monument created since its establishment including the Las Imagines Visitor Center, the two main petroglyph viewing trails in Las Piedras Marcadas Canyon and Rincondada Canyon, and the newly established Mesa Prieta trail. In addition, there are two sections to the north of the main monument known as the North and South Geologic Windows that are closed to public use and are not advertised on the PETR website. These areas

are isolated from the rest of the monument and are consequently more vulnerable to the pressures of growing development in the area (Walter 2018). The geologic windows have no facilities, limited road access, few petroglyphs, and feature several delicate archeological sites. They were therefore deemed inappropriate for official visitor use (Walter 2018). Use of these areas is restricted to either guided tours, often conducted by PETR staff for tribal representatives, or as a thoroughfare to access other open spaces in the area (Walter 2018).

This joint management is not without its challenges. Federal managers and the City struggled to agree, for example, on terms regarding the extension of Paseo del Norte through the monument. Planning for the Paseo extension began in November 1989, before PETR was established but amidst national attention on the archeological value of the West Mesa area (Ruscavage-Barz 2007). Throughout the planning process for this extension, which lasted from 1989 to 2003, the City of Albuquerque was mindful to minimize harm to PETR even after reobtaining the land from the federal government, but was disengaged from conversations with tribal authorities regarding the impact of the extension on the land and the religious rights of the tribes (Ruscavage-Barz 2007). The City was so lax in its tribal consultations that in October of 2005 the Cultural Properties Review Committee (CPRC) determined that the City had failed to meet the “good faith” agreement that was a stipulation of its ability to move boulders featuring petroglyphs and make way for the extension (Ruscavage-Barz 2007, 988). After rushing through the steps required to remedy this oversight and gain CPRC approval, the CPRC criticized the City’s “minimal tribal consultation efforts” but the construction permit was activated nonetheless, and the boulders were removed from their positions and relocated elsewhere on PETR (Ruscavage-Barz 2007, 989). This construction was harshly protested and fought against by many tribal representatives, FOTAP, PETR, and other members of the community. The road

now bisects PETR, separating Piedras Marcadas Canyon from the rest of the monument, and has faced ongoing controversy, including numerous lawsuits in the years following its construction. The City was careful to include several walking paths to reconnect the two sides of PETR in an attempt to minimize impact on the monument and the extension did alleviate growing traffic congestion and improve the commute time of many residents on the west side of Albuquerque (Ruscavage-Barz 2007). In the words of the company in charge of the construction, the extension provided “a much needed transportation corridor while enhancing the natural surroundings and minimizing the roadway footprint” (Wilson and Co. 2008). Though, as will be reviewed in Chapter 5, not everyone agrees that Paseo “enhances” the monument.

For the last 34 years, PETR has protected the geology and petroglyphs of the West Side to the best of its ability. They have consistently included tribal powers in their decision-making and have worked to honor native religions in their management style and goals. PETR is a phenomenal example of the potential of engaging local communities in management; After all, the monument was established specifically thanks to community activism. With this complex history, PETR has shown time and time again that it is nationally relevant, an invaluable resource, and deeply appreciated by all those involved in its care and well-being.

CHAPTER 3: Literature Review

This literature review begins by providing a basic overview of the way geographers and related scholars have interrogated the nature/society binary. This includes contributions from political ecology and the more recent socio-natures work of Norman (2021), Robbins (2012), Swyngedouw (1999), and Zimmerer (2000). It then turns to the emerging field of more-than-human geographies and its contribution beyond the nature/society binary to a rethinking of the border between these two categories and the introduction of the concept of agency (Bear and Eden 2011; Barua and Sinah 2019; Basitian 2019). It concludes with a summary of new materialist thought, just one thread within a larger field of scholarship relating to the nonhuman field or posthumanist turn. New materialism provides a theoretical framework for challenging human exceptionalism and decentering the human in natural resource and land management (Grusin 2015; Barad 2007; Kirby 2008; Plumwood 1993; Tillman 2015; Benson 2019). As such, this literature provides much of the theoretical basis for the interview questions for this thesis and its underlying research question.

Nature/Society Binary

The nature/society binary is deeply embedded in Western thought and has long been a focus of geographers (Lorimer 2012). The dichotomy posits a fundamental separation between the natural world and human society, creating a reality wherein these two spheres are set against each other as diametrically opposed and even antagonistic (Norman 2021). This opposition has been used by geographers for decades as a framework for conceptualizing human-environment interactions, but it is heavily criticized. Since the late 20th century, geographers and other thinkers have increasingly challenged and problematized the nature/society binary, going so far

as to propose that this idea of a separation between the natural and the human was never real at all (Braun and Castree 1998). Latour (1993) writes that, through acts of “purification,” humans intentionally create an ontological divide between themselves and nonhumans and reject any “hybrids” that might blur the line between the two. Latour argues that the very need for purification proves that this separation is unachievable, “the more we forbid ourselves to conceive of hybrids, the more possible their interbreeding becomes” (Latour 1993, 11). In working so hard to separate humans from nature, the supposed divide between the two actually weakens. By confronting the limitations of a nature/society binary geographers open the door to explore more nuanced perspectives on the interrelationships between humans and their environments.

The nature/society binary emerged from deeply rooted Western philosophical traditions that arrange the world into a hierarchy with society placed on top and nature subjugated below (Norman 2021). The roots of this binary can be seen in works as old as the Christian Bible but its influence was most firmly ingrained into Western thought during the “scientific revolution” in Europe in the 17th and 18th centuries (Latour 1993). This perspective had a notable influence on early geographical thought and led to approaches that emphasized the difference between studies on the physical landscape versus those on human activities (Braun and Castree 1998). Traditionally, physical geography examines natural processes and landforms while human geography focuses on social patterns and cultural landscapes. However, as the discipline evolved further, geographers and others began to recognize and acknowledge the unavoidable interconnectedness of natural and social systems (Escobar 1999). The field of environmental geography emerged from this philosophical turn to serve as a bridge between these two spheres (Bastian 2017). Environmental geography explores the complex interactions between societies

and their environments and highlights how human activities shape and are shaped by natural processes, challenging the notion of a clear boundary between nature and society (Braun and Castree 1998).

The rise of political ecology in geography has been particularly influential in dismantling the nature/society binary by intentionally contradicting apolitical beliefs that dominate contemporary conversations about ecological change. The removal of politics from geography either diminishes or completely disregards the relationships between humans and the environment (Robbins 2012). Apolitical views on the environment strongly reflect their binary roots and imply that nature is a fixed and finite system that cannot be meaningfully affected by human action (Robbins 2012). Political ecology intentionally contrasts this belief by examining the contingent relationships between humans and nature and emphasizing how environmental issues are inherently political and are shaped by power structures, economic systems, and cultural values (Robbins 2012). If nature is made, as is suggested by political ecologists and many geographers, then “its making is always about much more than just nature” (Braun and Castree 1998, 4). Political ecologists work from this understanding to examine how environmental degradation, resource conflicts, and conservation efforts are all embedded in broader socio-political contexts, challenging simplistic notions of “natural” problems and their “natural” solutions, which run rampant in apolitical conversations about the environment (Robbins 2012).

Recent geographical scholarship reflects this political self-awareness and increasingly embraces hybrid approaches that view nature and society as co-produced and mutually constitutive (Swyngedouw 1999). Concepts such as “socio-nature” and “nature-culture” have emerged in an attempt to capture the intricate entanglements between humans and non-human

actors (Latour 1998). Swyngedouw (1999) provides an example of just how deeply ingrained these entanglements can be by recounting the modernization process of Spain spanning the 19th and 20th centuries. Swyngedouw highlights how the modernization of Spanish would not have been possible without the movement's emphasis on how the wealth of Spain was directly tied to the control of the country's nature and geography. With powerful quotes from modernization movements connecting the well-being of the country to geographical processes, for example, "Los Pantanos o la Muerte! [Dams or Death!]" Swyngedouw shows how the "remaking" of the Spanish economy, government, and culture was explicitly contingent on the constructed nature that is Spanish waterways and hydraulic systems (Swyngedouw 1999, 453). Swyngedouw's example shows how landscapes, ecosystems, and even seemingly "natural" phenomena such as waterways are often the products of complex interactions between social and biophysical processes.

Geography's exploration beyond the nature/society binary has also influenced applied geography and environmental management practices. Karl Zimmerer's (2000) concept of fullness exemplifies the impact of this approach on these fields. Fullness is the recognition of nature/society hybrids in the world and the insistence that they be considered essential when developing conservation policies (Zimmerer 2000, 364). To Zimmerer, conservation itself is a hybrid, as it is produced specifically to address the meetings between nature and society. Fullness in conservation "cautions against the narrow type of conservation analysis that pries apart environmental and social attributes" and shows the benefits of emphasizing "flux (rather than fixity) and crossing-over (rather than cordoning off)" when engaging in environmental policies (Zimmerer 2000, 364). Similarly, integrated approaches to resource management,

ecosystem-based planning, and community-based conservation efforts all recognize the need to consider both ecological and social factors when addressing environmental challenges.

As geography continues to grapple with the nature/society binary, new theoretical frameworks and methodological approaches are emerging. More-than-human geographies and new materialism, among others, work against the idea of human exceptionalism to decenter the human when examining the world and explore the agency of non-human actors in shaping geographical processes. These perspectives offer novel ways of conceptualizing the relationships between humans, other species, and the physical environment.

More-than-human geographies

More-than-human geographies represent a significant shift in geographical thinking, moving beyond anthropocentric perspectives to consider the complex entanglements between humans and non-human entities, some of which have been explored above (Anderson 2014). This approach emerged in the early 21st century as part of the broader posthumanist turn in the social sciences and humanities and works well with environmental geography's goal of dismantling the nature/society binary (Norman 2021). More-than-human geographies recognize and address the agency and impact of non-human actors in shaping geographical processes and more broadly, the world. These actors might include plants and animals, domesticated or otherwise, microorganisms, non-living matter such as geological formations or technological entities, even ideas and concepts can be considered in this context. This field emphasizes that non-human actors do not exist passively to serve as backgrounds to human activities but are instead active participants in the co-production of space and place (Robbins 2012).

More-than-human approaches have been applied to various subfields within geography, including urban geography, environmental geography, and cultural geography. These methods

have been used by, among others, Christopher Bear and Sally Eden to describe the co-production of the action of angling by fish and anglers. Bear and Eden (2011) describe how the habits of the fish and anglers are relational to each other, the fish learn and adapt to new techniques of the anglers and consequently, the anglers develop new techniques, and so on. In urban studies, Maan Barua and Anindya Sinah (2019) examine a similar relationship between the territorial boundaries of animals within urban centers and the effects that these borders have on the humans within and near them. These studies are just a few of countless examples that show how these complex interactions shape ecosystems, cultures, and much more.

Methodologically, more-than-human geographies intentionally employ innovative techniques to better capture non-human perspectives and agencies that might be otherwise missed with traditional, anthropocentric, methods (Bastian 2019). These may include multispecies ethnography, sensory mapping, and the use of technologies like GPS tracking for animal movements and are all developed with the aim of decentering the human from their research and “taking nonhumans’ experiences, perspectives and agencies seriously, in ways that are situated, embodied and non-homogenising” (Bastian 2019, 3). Critics of this approach and these methods are concerned that by completely decentering the human in geographical analysis, researchers risk overlooking important power dynamics and ethical considerations (Plumwood 1993). However, more-than-human geographers frequently confront these risks and specifically address them to create what they consider to be a more ethical and engaged framework with which to consider contemporary environmental challenges and social trials in an ever-evolving and continually adapting field (Bastian 2019). To a more-than-human geographer, “methods don’t just describe worlds, but make worlds,” empowering the researcher and the methodology

both to co-produce an understanding of the world that is more well-rounded and inclusive and is a better overall representation of the world as a whole (Bastian 2019, 2).

New materialism

As a theoretical framework, new materialism is constantly evolving, with many different fields emphasizing its interdisciplinary nature. It is one of dozens of approaches that have emerged during the nonhuman turn of the past century including Bruno Latour's actor-network theory, assemblage theory, affect theory, etc. (Latour 2007; De Landa 2006; Gregg & Seigworth 2010; Grusin 2015). Each of these theories, in their own way, works against the idea of human exceptionalism, i.e. the idea that humans are superior to the "other" as expressed through various dualisms that organize the world into hierarchal categories (Grusin 2015). These dualisms are deeply ingrained in Western thought and have had a dramatic influence on the relationship between "humans and nature" (Norman 2021). New materialism especially problematizes the dualism of reason/nature, with "reason" representing humanity and agency while "nature" represents the more-than-human and passivity (Norman 2021).

Sixteenth-century scholars built on previous theories of "passive" matter to popularize the idea that there existed a total separation of humans and nature, though this separation was attributed to different causes. Philosophers ranged from proposing completely vitalistic explanations of the world, going so far as to suggest that God is matter, to a strict rejection of God or God's will, with others falling between these two hard lines (Gambel et al. 2019). French philosopher, Rene Descartes relabeled the human/nature distinction as a difference between the mind and body respectively (Coole and Frost 2010). With this language Descartes halves the human, dividing their physical reality from their epistemological understanding of the world. "I think, therefore I am" as Descartes says, but how can a mind think with no body to supply it? To

explain this contradiction, he argued that human exceptionalism comes not directly from God, but rather that God created the laws of nature through which humans operate and become exceptional (Gambel et al. 2019). Human exceptionalism and the Cartesian dualism continue to influence contemporary ideas of how humans should interact with nature. Matter is generally not considered creative or performative but is rather still viewed as passive and subject to the forces of either God or humans (Gamble et al. 2019).

New materialism offers an alternative account regarding the passivity of matter, challenging human exceptionalism and broadening the notion of agency. As Barad (2007, 178) explains: “Holding the category “human” (“nonhuman”) fixed (or at least presuming that one can) excludes an entire range of possibilities in advance, eliding important dimensions of the workings of agency.” It is this concept of agency that Barad addresses in detail when pushing back against the human/nature binary. Barad defines matter as agential and agency can be neither possessed nor granted, but rather understood as an “intra-activity” or “a doing,” i.e., matter is what it does and how it moves (Barad 2007, 178; Gambel et al. 2019). Understanding agency as inherent to matter counters the idea that matter is passive or inert and instead highlights the active nature of matter as one that changes and reinvents itself in unanticipated and unexpected ways (Coole and Frost 2010). This epistemological shift is not the addition of agency or autonomy to matter, but rather the recognition that humans do not implement agency or autonomy in any unique way (Schmidt 2013).

The concept of “performative matter” (or matter as a doing) translates into a performative new materialism (Barad 2007; Kirby 2008) Vicki Kirby works against the nature/society binary by encouraging a dynamic understanding of the world in which rather than having an exceptional “something” that distinguishes them from everything else, humans instead gain any of their

exceptional qualities (language, reason, etc.) from nature itself (Kirby 2008). This worldview establishes that nature is just as capable of these exceptional qualities as humans and posits that matter is not passive, but is rather active; doing (Kirby 2008). Put differently, “humans (like everything else) always partly constitute and are partly constituted by that which they observe” (Gambel et al., 2019, 123). We are not just humans, but “human be-ings” (Kirby 2008, 218). With a performative new materialist perspective, humans are but one example of how matter moves and creates reality.

Working from this idea of humans as matter, the Western worldview falters. Jana Norman (2021) outlines the “radical discontinuity” between humans and nature, highlighting the hierarchical nature of a dualist system and how the separation of humans and nature has historically been used to justify the subjection of the realm of matter. This hierarchy has not been limited to just humans vs. nature but instead has grown into an intraspecies system of delineation, a system that places those more closely associated with nature (women and BIPOC communities) below those more closely associated with reason (the white male elite) (Haraway 2016; Norman 2021). Plumwood (1993, 49) highlights the intentionality behind the development of a dualist system, “A major aim of dualistic construction is polarisation, to maximize distance or separation between the dualized spheres and to prevent their being seen as continuous or contiguous.” In the context of the human/nature dichotomy, this polarization is utilized by humans to create reality while simultaneously denying the ability of reality to create itself. If humans and nature are opposites, and humans have agency, then nature does not (Plumwood 1993, 50). This is the risk of a Cartesian worldview. Once one half of a dualism is raised above the other, so must all other dualisms follow suit and reorganize themselves into a better-than/less-than relationship (Plumwood 1993, 49)

Humans use dualisms and binaries to remove themselves from the material world and justify the subjugation of nature (Norman 2021). This subjugation might be accomplished through acts and processes of colonization or industrialization and can be seen especially in the laws and policies that govern the world (Memmi 1965; Benson 2019). New materialism breaks down this cultivated separation and emphasizes the responsibility of the human in the co-creation of the world (Tillman 2015). In a new materialist process, all matter moves and acts in such a way that it continually perpetuates and recreates itself. Therefore, anything exceptional about humans, “must be but a particular inflection of a fully generalizable behavior of nature... If there is no radical or absolute boundary line between things... Then humans have no more monopoly over what counts as intelligence, language, or even scientific inquiry than anything else does.” (Gambel et al., 123-124). Rachel Tillman explores this concept by outlining how the separation of nature and culture has “deeply impoverished our thinking” by limiting the human capacity to fully understand and engage with the world (Tillman 2015, 33). She reviews the aftermath of Hurricane Katrina to show how similar events in the future “can only be properly understood and prevented if we account for the ways the social, political, and natural aspects of the situation interact historically” and uses this context to argue that the new materialist goal of reanimating matter is not only a theory limited to academic spheres, but is “an ethical and political task” with potential for real impact on the world (Tillman 2015 34-35).

New materialism offers insight into potential avenues to reengage the human with the world and move past the disconnect into a more authentic relationship with reality. Benson (2019) examines how old materialist thinking and dualisms are deeply embedded in the American law system and environmental policies and how this way of thinking leads to problematic resource management. Many of these policies have been developed under the

assumption that material is passive, inert, or even predetermined so that nature will always return to a base state or balance (Benson 2019). However, using new materialism to recognize that matter is constantly interacting with, reinventing, and changing itself unpredictably and nondeterministically reveals that nature not only has the means and potential to but will inevitably change in radical and unique ways (Barad 2007). To achieve effective environmental management strategies, it is important to understand how “the diversity of things in the world (organisms, hurricanes, even ideas and emotions) [is] less significant than the generative processes that constitute them” (Braun 2015, 1-2).

Benson (2019) uses the Rio Grande watershed as a case study on how to shift focus away from things and onto processes. In this ecosystem, events such as flooding or wildfires are currently considered disasters to control. Benson instead offers a new materialist perspective that would recognize these events as actors within larger systems and as part of a complex and dynamic reality of which humans participate but do not facilitate. Addressing the role of these events in this system from a new materialist viewpoint would begin by dismantling the current, hierarchical approach that segments nature and attempts, but often fails, to manage water and land separately (Benson 2019). This new materialist approach to environmental management focuses on the participation of the human in nature, not the control of nature by the human. Rather than being a force that occasionally interacts with but is exempt from nature, humans would view themselves as a part of the systems around them and recognize their part in iterative change. Humans would also realize and accept that sometimes these systems are out of their control (Benson 2019).

In summary, there is an evolving understanding of the nature/society binary in geography and related fields. Geographers and other scholars have challenged the traditional separation

between nature and society for decades, with contributions from political ecology (Robbins 2012; Braun and Castree 1998) and the concept of socio-natures (Latour 1998; Swyngedouw 1999) providing key roles in this reevaluation. The emergence of more-than-human geographies, a literature that seeks to decenter human perspectives and recognize the agency of non-human actors in shaping geographical processes, has the potential to bring geographers further into rich discussions relating to the nonhuman turn. New materialism, a theoretical framework that challenges human exceptionalism and reconceptualizes matter as active and agentive, is perhaps the most advantageous of these approaches for natural resource management, offering novel ways of understanding the relationships between humans, other species, and the physical environment (Tillman 2015; Benson 2019; Braun 2015).

CHAPTER 4: Methods

This research investigates the presence and influence of more-than-human and new materialist concepts at PETR. Data collection was two-fold. Individual, in-person, and semi-structured interviews were conducted with participants of the VIP program. The initial findings from the interviews were then utilized to design a focus group with PETR staff involved in land management on the monument. This research was conducted with the approval of the Institutional Review Board under Protocol 2310089329. The data for this project was collected during February and March of 2024. This time frame had an unavoidable impact on the study due to the weather, visitor patterns, and

Interviews

This research draws on participatory action research methods to ensure the value and relevancy of the results (Savin-Baden and Major 2012). Throughout this project, I have worked to include the PETR staff in the co-design of the research and worked to ensure that the results were accessible and useful to those actually involved in managing the monument. I aimed to avoid an extractive research model, wherein information is collected from participants and presented with an unrelated third-party audience in mind (Gaudry 2011). The goal of this project is not to create knowledge centered around the wants and interests of "outsiders," but rather to serve the needs of PETR itself (Gaudry 2011, 115).

The questions and interviews were designed with the assistance of several PETR staff members. In a preliminary meeting, PETR staff were presented with the semi-structured interview guide. In this meeting, it was suggested that I focus the interviews on VIPs rather than the staff. These members expressed interest in learning about the volunteer's experiences at

PETR and how these experiences might help shape the management policies of PETR in the future. They explained that the VIPs spend the most time with the nonhumans of PETR and therefore would be the most appropriate demographic to engage in interviews. To take advantage of this insight and better meet the needs of the staff, the semi-structured interview questions and participation criteria were adjusted and the VIPs were contacted as potential interviewees (Savin-Baden and Major 2012).

Selection Process

VIPs are volunteers with the National Park Service and are not compensated for their time. VIPs must be registered through Volunteer.gov, which was included as a qualification criterion to ensure a consistent participant pool. A PETR employee worked with me to compile a list of any VIPs who might have been interested in participating in the study. With the help of this PETR employee, a list of 20 potential participants who were comfortable sharing their information and being contacted by the UNM researcher was compiled. At our request, the employee reached out to a diverse group of VIPs in age, gender, profession, and role at PETR. The resulting list of interested VIPs was then shared and all 20 individuals were contacted directly via email.

In the email, I introduced myself and explained the goal, background, and procedures of the study. At the end of the email, recipients were given my contact information and the option to either reach out if they were interested or disregard if they were not. Sixteen of the original list compiled by the PETR employee responded to this secondary email. Of that number, there were 15 usable semi-structured interviews completed, transcribed, and coded for analysis over two months in 2024 (Bryman 2016).

VIPs were selected to provide the bulk of the information regarding the interactions between humans and nonhumans at the monument based on their variety of knowledge and experience with the monument. Out of every human present at the monument, VIPs interact the most with the land and the human visitors, and they are on the frontlines in enforcing monument policies. Two main volunteer roles were interviewed for the study: VIPs who worked in the information kiosk at the PETR visitor center, an outdoor building that features information on the monument for visitors, and VIPs who walked the trails, maintained the land of PETR and interacted with visitors outside of the kiosk. Every VIP who participated in this study volunteered their time and knowledge and provided unique insight into the management practices of PETR. Demographic data was collected both during the interviews through conversation as well as afterward using an optional survey created and distributed through Google Forms.

Interviews

Semi-structured interviews were selected with the understanding that the researcher would, on average, only have time to interview each participant one time, that there would be a diverse group of participants, and that the interviews would need to be adjusted based on the interests and knowledge of the participants (Bryman 2016). To protect the ideas of the VIPs from being stifled or overlooked, a strict question-answer interview format was rejected in favor of a more organic, participant-led discussion (Savin-Baden and Major 2012). The VIPs were generally encouraged to share their experiences however they saw relevant and, when appropriate, were prompted with a few common questions to keep the interview on topic or delve deeper into a particular concept (Savin-Baden and Major 2012). This “rambling” and opportunity

to explore tangents helped broaden the results to what the participants considered relevant and important and diversified the results of the interviews (Bryman 2016, 466).

All of the interviews were conducted during February and March of 2024. These months feature the coldest weather experienced by PETR throughout the year and also the fewest human visitors. The length of the interviews varied from 30 minutes to one hour, depending on the engagement, interest, and availability of the participant. Interviews were conducted within the boundary of PETR to observe VIPs while they interacted with the monument. This setting was specifically chosen to engage participants with nonhumans throughout the interview process (Cresswell & Cresswell 2018). Rather than removing VIPs from their familiar environment and interrogating them about their volunteer duties, participants were instead able to share the landscape with which they were intimately connected (Cresswell & Cresswell 2018). This decision helped build a rapport during the interviews and the VIPs and offered unique opportunities for engagement that would have been lost outside of the monument (Savin-Baden and Major 2012). Participants were interviewed at different locations on the monument and during different times of the day. They were also given the freedom to choose where on the monument and when during the day they wanted the interview to take place. Thanks to this opportunity, participants were able to share their favorite spots on the monument, revealing many trails that are off the beaten path and would have otherwise been neglected from the study. Six of the interviews were conducted in the information kiosk and eight were conducted on the trails. One interview was conducted inside the visitor center conference room due to snowy conditions.

All participants signed an informed consent document that outlined the goals and background of the study. The document ensured participants that their personal data would be

deidentified before any use in the study. The document also asked participants to agree to the recording of their interview on a digital voice recorder. This device had no Wi-Fi capabilities and therefore could not be mistakenly connected to any cloud storage device, ensuring the privacy and safety of the participants' data and identities. Due to the close-knit nature of the VIPs and PETR employees, not only have the personal details of each participant been removed, but also any non-specific identifiers as well, including residence, profession, titles, etc.

The questions on the interview guide were designed to develop an organic flow of conversation while simultaneously keeping the interview on topic. The questions were also designed to prevent the use of inaccessible, overly academic terms and intentionally use the language of the participants to improve the engagement of the participants (Savin-Baden & Major 2012). The guide used for the interviews along with the rationale behind each question can be found in Table 1. These questions were used only as a launching point for deeper conversations and do not reflect the overall discussions with every VIP, each of which featured unique topics and questions.

Table 1: Semi-structured interview questions used with VIPs

Do you have any experience with land management prior to volunteering with PETR?	This question was asked to ascertain each VIP's history with land management, explore how any past experiences might compare to PETR, and reveal any changes that might have occurred throughout the monument's history.
In your own words, what are the goals of PETR?	This question was asked to identify any common rhetoric or keywords among the VIPs.
What would you describe as the most interesting or unique thing about PETR?	This question was asked to prompt VIPs to refocus on specifically PETR. It also often opened discussions into nonhuman elements.
What nonhumans do you encounter or interact with	This question was used to introduce new materialist concepts to the participants. Depending on the interest level of the participant, this question was often a launching point

when you are completing your volunteer duties?	from which to delve more deeply into new materialist theory.
If there was one thing you could change about the monument, what would it be and why?	This question was asked in the hopes that the focus on new materialist concepts throughout the duration of the interview would encourage ideas for change generated through a new materialist lens.
Human/Nonhuman Interactions	VIPs were also less formally asked to think about and explain their observations of interactions between humans and nonhumans at PETR and to explore whether they felt that there was any potential to help strengthen these relationships. If the participant disagreed with the idea of strengthening this relationship, they were encouraged to explain and elaborate on this position.

Focus Group

Following the interviews, a focus group of five PETR employees was conducted. The goal of the focus group was to address knowledge gaps left from the interviews and expand further upon the ideas by including a new perspective from those in professional roles. Due to the volunteer status of the VIPs, there was an anticipated point at which they were no longer able to answer questions asking specifically about why the monument had certain policies or made the decisions that it did, as volunteers are not involved in these processes. When these gaps were identified, they were added to the prompts for the focus group. The participants of the focus group were required to be full-time employees of PETR who were employed at the time of the discussion. There was one employee who participated in both the interviews and the focus group, as they are both employed by the monument and officially volunteer their time outside of work. Their experience with the interviews helped keep the focus group on topic and offered insights about the land that the other employees found unique and interesting. The discussion participants

signed an informed consent document similar to the ones signed by the interview participants. This document outlined the goals and background of the study and offered an overview of the presentation and discussion questions. It also ensured participants that their personal data would be deidentified before any use in the study. The document also asked all participants to agree to the recording of the discussion on the same device as was used to record the interviews: A digital voice recorder without Wi-Fi capabilities to best protect the privacy and safety of the participant's data and identities.

The focus group was conducted following the interviews to allow for the presentation and discussion to be developed and built off of the interview findings. The focus group lasted for one and a half hours and was conducted in the monument's visitor center conference room. This location was chosen by the staff as it allowed for a PowerPoint presentation. The presentation featured an overview of the study's goals, methods, and a brief introduction to post-humanist theory to make this research as accessible to the monument as possible in thanks for their support throughout this project. After sharing the background of the study, the discussion portion of the presentation was conducted. The focus group prompts are summarized in Table 2:

Table 2: Questions employed during focus group with land managers

What nonhumans are there at PETR?	This question was to identify any similarities or discrepancies between the employees and the volunteers regarding the nonhumans on the monument.
What impact do these nonhumans have on PETR?	This question was designed to more explicitly connect the nonhumans of PETR to this theory. This question also helped the employees relate themselves and their experiences to the monument for the rest of the discussion.
How does PETR encourage the connection between humans and nonhumans?	This question targeted the professional capacity of the PETR employees and allowed the focus to delve more deeply into the specific management policies of the

	monument and the purposes behind them and to ask how those policies relate to new materialism.
Would you say this connection helps or hinders PETR in achieving its goals? How so?	This question again took advantage of the detailed, professional knowledge of the employees regarding the specifics of PETR policies and procedures.

These questions were developed to be conversational, relatable, clear, one-dimensional, and open-ended (Krueger & Casey 2000). Similar to the interviews, the focus group questions were designed to use the language of the participants rather than ask them to adapt their own terminology for the sake of the discussion (Krueger & Casey 2000). To conclude the focus group discussion, the participants were presented with the results of the interview questions. These insights were used to gather ideas on how to reconnect the human and the nonhuman at PETR. This was the final portion of the discussion and the staff were asked to comment on and build upon the VIP ideas.

The data collected from the interviews and focus group was then coded to identify nonhumans frequently found on PETR and recognized by both the VIPs and the employees. The recordings from the interviews and the focus group were transcribed by hand by the researcher and simultaneously deidentified. The original recordings were immediately destroyed following each transcription. The findings from the data collection portion of the study were then uploaded to and coded for analysis with the use of the HyperRESEARCH program. All transcripts were analyzed and organized into themes summarized in Table 3 (Cresswell & Cresswell 2018). The codes used in this project were developed during the coding process to avoid imposing any predetermined notions on the data. See Table 3 for a list of relevant codes as organized by five main themes using grounded theory which are employed in Chapters 5 and 6 (Cresswell & Cresswell 2018).

CHAPTER 5: Findings

The results of the data and methods outlined above are now organized into five main themes: The Landscape of PETR, The Cultural Resources of PETR, Petroglyph National Monument, The Development around PETR, and The Neighborhoods of PETR. Each of these groupings are further subdivided to distinguish between each more-than-human entity and provide insight into their roles and influences on the monument. These classifications, themes, and codes were all created and determined with the assistance of PETR VIPs and staff (Gaudry 2011). An overview of all themes and codes used in HyperResearch to conduct analysis is in Table 3:

Table 3: Themes and codes

Themes	Codes
The Landscape of PETR	Geology Desert Climate Wildlife and Vegetation
The Cultural Resources of PETR	Cultural Relevance and Spirituality Petroglyphs Viewscape
Petroglyph National Monument	Signage and Maps Designated Trails National Park Service Site Status Visitors
The Development around PETR	Struggles Advantages
The Neighborhoods of PETR	Neighbors and their Dogs Social Trails

Participants of the interviews were also asked to take part in an optional demographic survey following the interviews. Fourteen of the 15 VIPs responded to this optional survey. Nine of the 14 respondents reported themselves as retired from a variety of fields, with another four reporting as working in contract, temporary, or seasonal positions and the last reporting as self-employed, meaning each has ample time to spend on the monument. The oldest VIP reported

being between the ages of 80 and 89. Eight of the respondents, over half, reported as being between the ages of 70 and 79, two responded as being between the ages of 60 and 69 and two responded as being between the ages of 50 and 59. There was only one respondent who was under the age of 50, and they reported being between the ages of 20 and 29. Seven of the 14 respondents identified as women and seven identified as men, an even split. There were no respondents who identified as transgender or nonbinary. Eleven VIPs responded that they identified as white or Caucasian. One VIP identified as Hispanic or Latino and another answered that they identified as both Hispanic or Latino as well as Native American or Puebloan. One respondent identified as Asian. Respondents to the survey reported volunteering for PETR for anywhere between less than one year to 15 years, though through conversation many VIPs reported having had experience with the monument prior to volunteering in an official capacity, with said experience in some cases extending to over 30 years. These experiences ranged from simply hiking the trails or walking their dogs, to previous employment with the monument.

The Landscape of PETR

The landscape of PETR is a constant presence that affects everything on and around the monument. The geology affects construction in the area, the desert climate is a unique challenge to many visitors, and the wildlife and vegetation are a constant reminder of the complex ecosystems in the area. The interviews continually reinforced how each of these entities is an integral part of PETR that helps convey the inherent ecological and cultural value of the land.

Geology

The geology of PETR has far-reaching effects on the monument. The basalt caprock on the top of the mesa affects what can be built in that area and what resources are available there.

One VIP reported, “People are building on [the lava flow] now and it’s awful because you have to go through a thick layer of basalt and there’s no water up here!” And expressed confusion about why companies would want to spend the money and time to dig through the tough lava rock to install water services when they felt that there were cheaper alternatives. With this in mind, the basalt caprock is an important factor for developers to consider when planning construction on the West Mesa.

To help visitors understand the geology, VIPs often attempt to connect the lava flow and cinder cones to the larger context of the Rio Grande Rift, which spans from Chihuahua, Mexico through New Mexico and into southern Colorado. This includes mentioning the Rio and the surrounding mountains, especially the Sandias, the Manzanos, and Mt. Taylor. One VIP noted that “I find myself explaining the volcanoes, the mesa, the Rio Grande rift, the whole escarpment. I find that link fascinating” and indicated that by contextualizing PETR’s part in a larger geologic process, they are often able to help visitors connect with this aspect of the monument’s presence. However, another VIP reported that to engage visitors in the geology they, “kind of have to make it easy for people to understand.” This was a common sentiment, with one-third of the VIPs in addition to the staff reporting similar strategies of attempting to expand visitors’ knowledge while avoiding an overwhelming explanation.

The focus group identified the geology as a nonhuman within the first few minutes of the discussion. The basalt makes trail construction and cable installation difficult and expensive, limiting what services the staff are able to offer visitors. However, the discussion did not focus on this challenge but rather on how the lava rock, volcanoes, and other geologic formations “strengthen” visitors’ connection to the monument. The staff frequently use the geology to engage visitors directly with a tangible part of the land they can touch, see, and relate to: “A:

Handing something to somebody and asking them to feel a certain way is harder. B: Yeah, I always try to take education groups [to the volcanoes] cause yeah, it's a great point to talk about those connections, but like geologically and naturally, I always think it really strengthens when you point it out." The staff consider the geology a vital part of PETR.

Desert Climate

Four of the VIPs and all of the employees noted that visitors often seem unprepared for the high, dry desert climate and are similarly unaware of the impact that the environment might have on them, specifically if they are visiting from a non-desert environment. The only trailhead on the monument that provides water is Boca Negra Canyon, which features the shortest and oldest trails. When questioned on why this is the only trailhead with water, PETR staff explained that the monument did not choose where the water lines were laid, but instead inherited the construction from the former Indian Petroglyph State Park. As noted in the section above, the area's geology makes it economically difficult to install water at the other trailheads, especially on a limited federal budget. VIPs reported that they frequently remind visitors to put on sunscreen and bring more water to keep themselves safe in the high altitude, especially during the summer. Yet, despite the warnings, visitors still occasionally underestimate the effects of being a mile high in the desert and consequently experience sunburns and dehydration.

Visitors also seem to be unaware of the fragility of a desert climate. One VIP explained that "the desert remembers lots of things, the desert is very, very fragile and it's very easy to hurt and things just don't go away here." This VIP used an example of the prevalence and quality of archeological resources on the monument as an example of the desert's longevity but also pointed out how litter, food waste, damaged vegetation, graffiti, etc. all last just as long as pottery sherds and petroglyphs. Several VIPs expressed their admiration for the desert and how

PETR is “the best place in Albuquerque!” To explore a climate they describe as unique. In the words of a VIP, “This is a transitional high-altitude desert, which is a little bit special, it deserves to have that space. This area is worth protecting, there’s something really important about it.”

One VIP explained how PETR might be the best or only chance visitors have to experience a desert climate: “A lot of people who come out West have never been in a desert, they don’t know what it’s like. So to have this where they get a chance to come out and see it, it’s just not just plain desert, there’s stuff out here.”

To the staff, the desert is an intimidating figure. They expressed how the desert climate seems to be the element of PETR that “humans have been able to like impacted the least... it’s *hot*, and there’s not water, and the elements that we have we haven’t really been able to mold to make more accommodating.” According to the staff, the desert is a given element of working in this area and is “very defining of this place... just a part of it.”

Wildlife and Vegetation

Nearly every VIP, 12 out of the 15, shared personal stories about the wildlife, ranging from fond to annoyed. Animals identified from most frequently to least are as follows: Coyotes, roadrunners, rattlesnakes, birds, lizards, hummingbirds, millipedes, cottontail rabbits, jackrabbits, mountain lions, bears, quail, burrowing owls, cactus bees, bobcats, skunks, badgers, and foxes. This is not an exhaustive list of animals present at the monument but represents the animals discussed by VIPs and employees as impactful on their lives or daily routines. In general, VIPs tend to feel positively towards the wildlife: “They make life better absolutely. They do. They just do.” VIPs frequently empathize with wildlife, such as with the building of major roads next to the monument, “The critters that live here used to have direct access to the Rio, but since the city has moved in they don’t have that access anymore, so a lot of the animals

that we're protecting here have this weird boundary that doesn't exist in their minds, so they don't know that they're putting themselves in danger when they cross Unser Blvd."

A smaller number of VIPs, only two, report a more neutral or even slightly negative feeling about specifically rattlesnakes and coyotes, calling them "pests." These reactions were always explained by how these two species have the potential to harm dogs. Notably, these feelings were never translated to animals that cannot harm dogs. The focus group revealed that PETR employees struggle to communicate with neighbors whose houses border the monument on how to responsibly interact with wildlife: "Talking to the neighbors about why they shouldn't kill rattlesnakes. They lived here first, your house is just in the way of their habitat so please don't kill them, they're keeping things in check around here. Just doing that outreach like, yeah, please don't poison the coyotes... Don't feed the coyotes! Keep your cats indoors so *they* don't feed the coyotes." A few VIPs are extremely in tune with the wildlife on their usual commutes and can map the path, habits, and histories of seemingly every animal on the monument. One shared some of the changes to the monument they had noticed over the years:

There used to be, you know, we were talking about wildlife, for several years, there was a pair of burrowing owls who would nest here every Spring, and I would walk past here and they would yell at me. And one day, I saw a lot of mountain bike tracks around there, never saw the owls again. You know, six or seven years ago, we walked here and we would have flushed out three or four rabbits by now. And it's a little early, in the year, but we would hear the quail calling. A little later, we would see a lot of quail. Visitorship has increased markedly. And when there are a lot of humans roaming around wildlife gets the hell out of there. There are still mountain lions that use this as part of their range, and usually, I see their tracks around this time of year. It seems that in the winter and early spring, this is where they come by, and one reason that they do is to ambush dogs!

This report shows another common trend through VIP reports: VIPs who have been volunteering for more than a few years all consistently report that there is "less of everything"

regarding wildlife, indicating a drop in animal populations. VIPs most frequently associate this population decline with the increase of humans on and around the monument.

The vegetation was noted less frequently by VIPs and was only mentioned by three volunteers. Two of these volunteers only brought up vegetation in the context of the unintentional creation of social trails, which will be addressed later in this chapter. VIPs generally agreed that the monument's vegetation is unassuming for most of the time. However, a few interviews were done immediately following a snowfall, and the additional moisture produced much more plant varieties than usual, prompting more VIP remarks about how “it doesn’t take but one rainfall for this whole place to come alive.” A few VIPs had a specific plant or group of plants that they identified with and wanted to point out, and one had an example of how the legal protections of the landscape thanks both to its importance to the city of Albuquerque and thanks to its status as an NPS site come into play: “[I’ve] had chats with neighbors about ‘no you can’t dig up that cactus, no you can’t have those rocks.’ ‘But they look so good, they’d look so good in my backyard!’ ‘Yeah I know, but it’s also illegal at a federal level, there’s pretty hefty fines’.” While the vegetation may not exert the same amount of influence as the wildlife or the geology, it is still a valued piece of PETR. The focus group talked about these entities differently, focusing on the interactions between the different kinds of wildlife and vegetation instead of how these entities affected them or their experience on the monument. One staff member pointed out how they considered these entities to be stewards of the land just as much as the staff is, highlighting the importance of their role at PETR:

A lot of the nonhuman entities here are also stewards of the landscape itself. So like our plants and animals, since this area is just going to keep trucking, even if everyone else were to disappear the millipedes would still keep breaking down the dead material, the coyotes would still keep the rodent populations in check, and

so, those things are just continuing to be stewards of the landscape, even with us around, with us not around.

The Cultural Resources of PETR

PETR is extremely important ecologically, culturally, historically, socially, etc. The location and resources of the monument are valued by its employees, volunteers, visitors, and the surrounding communities of Albuquerque and the pueblos. The monument is a significant cultural site, both to Indigenous religions and to current Albuquerque locals, the petroglyphs provide invaluable insight into the history of the Southwest region and its inhabitants throughout the years, and the viewscape is an unassuming entity that wields surprising power that reaches far beyond the borders of the monument.

Cultural Relevance and Spirituality

“What an incredible privilege it is to live in what is a tremendously sacred landscape.”

The land of PETR is a vital religious site to at least 29 tribes in and around the Albuquerque area and beyond. This cultural significance frequently guides the monument’s policies and actions. Indigenous groups regularly visit the monument and practice traditional ceremonies. In 2002, the monument completed an ethnographic landscape report detailing the connection these groups have to the land and the focus group revealed that the monument is working on an updated version today. The petroglyphs, volcanoes, and viewscape are all sacred to many different groups for various reasons and are deeply respected by those who work the land and are responsible for this resource.

Based on the demographic survey taken of interview participants, one VIP identified as Native American. This participant was not officially representing any tribe but was rather speaking from their personal experience and willingly offered their unique perspective on the

project. The respondents who identified as white or Caucasian were much more likely to remove themselves from the landscape with their language and distinguish between the spirituality and the connection that they felt to PETR compared to the cultural ties to the land experienced by Puebloans and other native peoples. To describe their relationship to PETR, these VIPs used words such as “visitor,” “observer,” “neighbor,” “admirer,” and “acolyte,” carefully separating themselves from the monument and implying that their place is meant to be outside PETR’s borders but that they are fortunate enough to be granted access to the land from time to time. These VIPs talk about “a feeling” that they get or “an energy” that they sense when they are on the land, “there’s a peacefulness, a calming... It’s grounding.” Five of the VIPs specifically reported feeling more connected to what they referred to as “Mother Earth” through their time on the monument. However, these same VIPs also carefully differentiated what they feel from the cultural ties held by the tribes and pueblos of Albuquerque and the Southwest. VIPs frequently remarked how they don’t necessarily understand the details of the importance to the tribes, but that they don’t need to know those details, they just need to respect them. This sentiment is consistently expressed to visitors and is explained by a VIP:

There’s a little thread that goes through a lot of Puebloan culture, and especially their religions and practices, in that most of the Pueblos that we still have to this day only survived, their culture only survived by going underground when the Spanish came through. So their culture is not something that they can share openly with non-members of their pueblo or sect of their pueblo.

In contrast, the VIP who identified as Native American had a dramatically different way of talking about PETR, one that was incredibly personal:

These were the sacred places where it began. It began here, it created the nutrients that are in the water that have allowed us to harvest and to grow all throughout this Rio Grande valley, so when I leave it and I can’t see it anymore? I lose a part of my family... It is unique because it was birthed for us, now we’re at a point where we have to share it and explain, it is our connection to our family... So it’s

kind of a feeling of love, right? Whether it's for the ground that we walk on, the view, especially the rocks at the bottom. They've been here the longest. What did you see? What could you tell me? Where you came from?

This is just one perspective and cannot be considered representative of any larger demographic. However, this account does shed light on how this area has deeply affected people for generations and how people interact with the monument differently based on their identities and cultural experiences.

The cultural significance of PETR is something that the staff considers a key component of the monument. During the focus group, one employee expressed, "We are trying to kind of express that [the monument] is more than the sum of its parts, there's something more to it here." They are always trying to share this importance with visitors with the goal of improving connection to the land because, in the words of an employee, "helping them understand what's going on here, why it's important, can help protect the [monument] in the long run, cause it gets them on board with recognizing, hey there's something special about this place. There's something worth caring about here, there's a reason that I should be paying attention."

Petroglyphs

Among their other effects on PETR, such as aiding in its formation and guiding projects within its borders, the petroglyphs draw visitors as well. One of the most common questions asked of VIPs is what do the petroglyphs mean? VIPs are quick to direct visitors away from this line of questioning, as the employees have made it clear through signs, brochures, tours, etc. That the meaning of the petroglyphs is not for visitors (or even the staff or volunteers) to know as they are private and sacred to the people who inscribed them and their descendants. Instead, VIPs encourage visitors to create their own ideas of what the petroglyphs mean: "The petroglyphs are up for your own interpretation. You look at them and tell me what you see, 'cause I can't tell you

what you see, and I *definitely* can't tell you what the original person who made it was thinking when they put it down because unfortunately, they've been dead for at least 300 years." A few insights into the history of the region can be gained based on the subjects of the petroglyphs, but these cannot be assumed to represent the meaning of the petroglyph or the intent of their creator. A prominent example of this relationship between the petroglyphs and their historical context is the macaw petroglyph on Macaw Trail in Boca Negra Canyon, featured in Figure 7.



Figure 7: Macaw petroglyph, the main feature of Macaw trail in Boca Negra Canyon. Nolen 2024.

The presence of this non-native species as a petroglyph broadly implies that at least one person in this area at some point had some sort of connection to areas at least as far south as southern Mexico, where the macaw's habitat begins. Exactly what kind of connection this petroglyph represents cannot be assumed from the image alone, but within the context of highly developed and wide-ranging trade routes in the southwest prior to Spanish occupation described

in oral histories and supported by archeological evidence, the macaw petroglyph can be considered evidence of the reach and sophistication of these routes. Similarly, other petroglyphs feature symbols such as Christian crosses or sheep and are often assumed to have been created by Spanish herders and farmers in the area during the era of colonization, though some point out that these could have also been created by Indigenous people, who had equal exposure to these concepts through the Spanish. These images are shown in Figure 8.



Figure 8: Christian cross petroglyphs as seen in Rinconada Canyon. Nolen 2024.

VIPs often stop to help visitors spot the images, which can be difficult to see in certain weather conditions or from different angles. If a visitor has a complaint about the visibility of the petroglyphs, VIPs are encouraged to use a common response that “the petroglyphs will reveal themselves to you when they want to,” which is an idea supported by the employees and reiterated in the introductory movie and the literature available at the information kiosk. VIPs also more frequently directed visitors to trails with visible petroglyphs because “most people are

coming to see petroglyphs.” This results in far fewer visitors being directed to the Volcanoes Day Use area unless they specifically ask about that area and exemplifies how the petroglyphs influence use of the monument today.

All 15 VIPs agree that the petroglyphs are a main driving force of the monument. They inspired the monument’s designation, they draw the majority of the visitors, and they represent an important part of Puebloan culture. However, four of the VIPs point out that they are not all that makes PETR special: “Certainly the glyphs are not the most unique, ‘cause they’re all over this part of the country, and you can see them even more closely, you can get closer to them in quite a few areas that are not very far from here.” To the VIPs, what truly sets PETR apart is the combination of the petroglyphs with the culture and the educational opportunities.

The focus group had similar opinions about the petroglyphs as hugely influential at PETR. One employee pointed out that, “if there were no petroglyphs in this area this area wouldn’t be protected.” However, the staff also articulated some negatives of having such a specific focus for the NPS unit, as many visitors to PETR do not allocate much time to spend at the monument and come specifically to view petroglyphs, but nothing else. When interacting with visitors one employee expressed how, “My first impulse is to send them to a longer trail that has a more natural landscape, and then they come back and they tell me, ‘Yeah, I don’t have that long, I only have like five minutes. I just want to see petroglyphs and leave.’ And I’m like, ok, that’s not how *I* would experience a national park site, but that’s them.” With national focus so heavily centered on petroglyphs, the staff struggles to broaden visitor’s experience on the monument.

Viewscape

The viewscape of PETR is often an underrepresented aspect of the monument. When asked what makes PETR unique, the majority of VIPs, 11 out of 15, mentioned the view as either nearly or equally important as the petroglyphs themselves: “Here you have a 360-degree view. You can see the Santa Fe Valley... Mt Taylor, it’s just amazing. And the sunsets and the sunrises... They’re incredible sometimes. Get a beautiful sunrise and your day is made.” VIPs and employees both repeatedly emphasized that “the whole landscape is sacred, it’s not just what’s in the Monument.” VIPs placed a high value on the ability to see all of the surrounding mountains from the monument, especially from the mesa top and from the visitor center. One VIP explained: “[The view] becomes really lovely, because on a clear day, you can see from Santa Fe all the way, I mean, to the Manzanos! And you still see the valley in between, and that in itself is just like a view, ah you see, it shouldn’t be for just a few who can afford the land or to build the houses, or what have you. That’s free for us all, when we come here... I love that.” An example of one of the many impactful views from PETR can be seen in Figure 9 below.



Figure 9: View of the Sandia Mountains from the Volcanoes Day Use Area picnic area. Nolen 2024.

There was a minority of the VIPs, only three, who did not place the same importance on the view, stating that developments like the Amazon fulfillment center, a large building visible to the west of the monument did not bother them at all. For these VIPs, the view did not seem to factor into their experience on the monument. Several others, however, described this same building as “marring the landscape” because it disrupts the view between the mountains and expressed how the disrupted view around PETR by construction, traffic, and telephone wires makes them “permanently sad.” This building can be seen in Figure 10, with half of Mt. Taylor blocked behind it.



Figure 10: North sightline from the Volcanoes Day Use Area to Mount Taylor obscured by the Amazon fulfillment center. Nolen 2024.

The viewscape is so important that not only is it sacred to the Puebloans and valued by the volunteers and employees of PETR, but it is considered iconic to the surrounding communities as well. The city of Albuquerque has implemented several legal protections to preserve the view as best they can, including context-sensitive planning decisions and an Integrated Development Ordinance (IDO) to guide future development on the west side. One VIP shared a summary of these protections:

In the zoning code for the city, there are whole series of what are called protection overlays. They're specific requirements for development in small areas, like the urban center or it could be downtown, Knobhill, there's a whole bunch of them across the city. Some of them are historical and some of them are just neighborhoods that have set features that are supposed to be protected. There are two view protection overlays, and one of them is on the West Mesa escapement. It is written to protect views both from down here, views of the rock face, and then from the mesa top, views really from all directions but mostly east to the Sandias and down to the volcanoes. The other view protection overlay is along Coors Boulevard... It goes really all the way along Coors, and the idea with both of those, the view they're protecting is a view of the face of the mountains and the bosque. So, in the view protection overlay over here on the West Mesa there are a couple of components. One is there is a section of [the road] where there are height restrictions... The entire view protection overlay also mandates certain light reflective values, buildings, etc. They're supposed to be using stucco that is in earth tones so it's compatible with the natural landscape. You're not supposed to have a house that is an obvious bright white. We're not southern California, we're not the Mediterranean.

These protections strictly regulate the construction on and around the West Mesa, preventing the construction of buildings that are too tall or large, and preventing the construction of certain business types that are not "congruent" with the area, such as drive-throughs, which would heavily favor car use and increase noise pollution and traffic in the area. Currently, these restrictions are heavily focused on the east side of the monument, which right now is the side experiencing the most rapid development. Unfortunately, as can be seen with the example of the Amazon fulfillment center, "nobody has protected the land to the west of Atrisco vista," leaving the view to the west of the monument at risk.

The employees expressed the same high value for the view during the focus group. However, there is currently a lack of literature available to visitors regarding the landscape and its importance. There is a short section in the Volcanoes Day Use pamphlet that seems to reflect the emphasis given to this nonhuman by the VIPs, but this is not the pamphlet that is most frequently distributed to the visitors, who are overwhelmingly interested in the petroglyph

viewing trails in the canyons. Other than this and two other one to two paragraph signs at Boca Negra Canyon and the visitor center, there is little said about the viewscape. When asked if this underemphasis was an intentional decision, the focus group answered:

A: I don't think it was deliberate. I just think the monument hasn't really developed that aspect of it yet. I think we want to. We want to share what we can share; we just can't yet. We bring it up a lot, in meetings, we talk about it we just don't have anything formal.

B: We don't have a whole lot of literature, and I think it comes down ultimately to that one. It can be hard to explain, hard to put into one viewpoint, because everyone feels something a little different, and maybe that's something that we can kind of start expressing. And then, also, there's so much other history here. That's not a great excuse, I just think we find ourselves talking a lot about the more physical things, like petroglyphs the Spanish history, things like that.

A: I think we're more likely to talk when we can see, like we can see Boca, we can see the volcanoes, from Piedras Marcadas, from the top, we see the volcanoes. When we see those connections, we bring it up when we talk about it.

Petroglyph National Monument

The monument itself acts as an entity that influences the world around it. The nonhumans in the following section are not specific to the land of PETR but have evolved as a response to the national park status of the land since its designation in 1990. The signs on PETR directly affect the way that humans interact with the land, as they control the knowledge available to visitors and the message conveyed by the staff. The designated trails are the main tool through which the staff and volunteers control human visitors and mitigate their effects on the monument. The current status of the land as a unit in the NPS is an independent draw for visitors, as the title of National Monument places PETR in a national context and is a universal indicator of the importance of the site. The visitors themselves act as a separate entity, one that must be directed, managed, and facilitated by PETR staff and volunteers.

Signage and Maps

Note: Before the start of this project, PETR was in the process of revamping its current signage. Most VIPs had no information about this project other than that it would be implemented "sometime soon," and directed the researcher to ask the employees about the plan. Therefore, the comments regarding PETR signage were made based on the signs present on the monument as of Spring 2024.

In general, the signs of PETR are outdated and are a major point of concern for VIPs. Signs are the main, and sometimes only, method through which PETR can convey information to its visitors, especially if visitors do not visit the visitor center and don't encounter any VIPs on the trails. Many of the current images are fading or peeling from sun and weather damage. Most of the signs were posted before the installation of the metal cables designating the official path of the trails, and this has caused some signs to have inexact placements, specifically the ones pertaining to the audio tour available on the NPS app. One VIP explained, "See they put the sign [on a different trail] so no one who's walking the park following the tour is going to see that. It should be over there." The same issue has caused some of the maps posted at trailheads to be inaccurate. VIPs reported this as especially presenting as an issue in Las Piedras Marcadas where there is a network of trails. There are two official entrances and exits to the trail close to each other, one is the main entrance for visitors and the other is a local neighborhood entrance. The differences between these two are obvious when entering, as they are a ten-minute walk from each other and have different parking lots. However, when returning from the hike, the turn-off for one or the other is only marked by a small, hanging sign that is nearly impossible to read on windy days. Due to this lack of clarity, visitors who started at the visitor entrance often turn off the main trail too early and exit the monument into the neighborhood park instead. A VIP provided insight into this confusion, "People end up going that way because they see the houses

and they remember they came in by the houses. So, people walk down that street all the time, and they look confused, where's the parking lot at? [laughs]." The maps and signs on the top of the mesa are much more sparse and difficult to follow, causing confusion about which trail is official and which ones should not be walked. Without a guide or experience, it is impossible to stay on the designated trail.

With the exception of the inaccuracies on the maps, the information on the signs is considered adequate by most VIPs. There were no comments about the accuracy or the message of the signs, the main concern was the condition. Several VIPs agreed that they wouldn't want too many signs as this would take away from the natural experience of the trails, but they also wanted more signs pointing out petroglyphs, "I have a lot of people who come and say they wanted to see that [petroglyph], and they missed it. 'Cause it doesn't have a different marker, if you just look at what you're directed to see, you can miss a lot." However, each VIP that brought up this issue had different petroglyphs that they felt should feature a sign, meaning there would need to be dozens of signs to capture every image.

At the recommendation of the VIPs, the employee focus group was questioned specifically about the signs and the project to improve them. The employees responded that "the main objective right now is to replace the signs, because we've got new information, new perspectives, because as we go on we notice new things." This includes replacing outdated or damaged signs and maps, plus creating and adding new signs. Some of the VIP reactions to signs were also shared with the employees at this time, and in response to the question of more signs denoting specific petroglyphs, the employees pointed out how to have a sign for each petroglyph they would need over 20,000 signs which risks taking away from, "the feeling of being in [the canyons], exploring and discovering on your own, as opposed to us pointing every single

petroglyph out.” They also noted how “A: We know people don’t read signs. B: The people who read signs are the ones who are probably in the least need of signs!” And explained the risk of highlighting points of interest on the trails, as there have been many issues with graffiti as recently as April of this year, “when you have a sign pointing out something, you’re endangering that thing.”

Designated Trails

The designated trails are the main avenue for the monument to guide visitors while on the monument. The most trafficked trails are marked by metal cables installed by a volunteer group and are designed to blend in with the natural landscape as much as possible. The goal of the cables is to combat the frequency of unofficial social trails, which threaten the wellbeing of the land. Since their installation over the past few years, VIPs report that they have needed to redirect far fewer people back onto the trail, as it is now very clearly marked. The installation of the cables is an ongoing process and the employees report that their goal is to eventually have cables on every designated trail in the monument.

The focus group explicitly described the designated trails as invaluable to the monument and discussed their role in creating and maintaining this entity, “we’re building the trails and signs, so, we’re humans adding to the nonhuman elements.” Designated trails are determined by the resource management division of PETR and have been described by a volunteer as: “The official trail is like, we are sacrificing this area to be able to take care of that erosion, all of that damage to the natural environment, and if you are using the official trails, that protects the rest of the monument.” The designated trails are designed to avoid and protect any archeological sites and the make sure that the path of the trail isn’t going to have any negative effect on the integrity of the land, such as with erosion. The same VIP added that the designated trails are, “designed to

let people appreciate the resource without wandering off into the desert.” However, not all VIPs share this idea of the trails as a sacrifice. Many VIPs described the designated trails as a vital opportunity to engage visitors in the monument in a way that would otherwise be impossible: “I see it as an important piece. ‘Cause we wouldn’t be allowed to preserve [PETR] if people didn’t fall in love with it. So we have to create that appreciation in order to do the other work. It’s important.” Indicating the importance of designated trails in developing visitor connections on the monument.

During the focus group, the employees shared some of PETR’s plans for future designated trails, including an ADA-compliant petroglyph viewing trail in Piedras Marcadas Canyon. A few suggestions for the monument gathered from the VIP interviews were shared during this conversation, and the employees were open to the idea of developing a designated trail from the visitor center to the mesa top dedicated to offering visitors the opportunity to connect and engage with the viewscape. As of Summer 2024, there are no designated trails open to visitors from the visitor center. Visitors must get back in their cars and drive to any trailhead. The VIPs reported this as a consistent issue and point of frustration and suggested that having any trail, even one without petroglyphs, to send visitors to would help engage visitors in the monument.

National Park Service Site Status

During the focus group, all the employees laughed together about an inside joke, “Oh, and the stamp! The stamp! Can’t deny them their stamp, can’t forget about the stamp!” Referring to the insistence some visitors to PETR have about receiving the stamp for their official Passport to Your National Parks. To be considered for inclusion in the NPS there were many standardizations PETR had to meet, including a Unigrid brochure and other pamphlets, the

stamp, the introductory video “A Beautiful Mystery” available at the visitor center, and specific trailhead amenities. These requirements are consistent across NPS sites to provide visitors with some idea of what to expect when they visit and to create a common feel from site to site. Today, PETR is one of 429 NPS sites across the country, and VIPs report that this status affects the type and number of visitors the monument receives. All VIPs agree that there is a percentage of people, “who are just, they want to be able to tell their friends, I visited 80 out of 150 national parks. They’re just checking it off a list.” One VIP had a particular story about this,

I remember one day of older women, and they were all excited and they wanted the stamp, and it’s like, ‘Oh good! We’re driving from Tennessee out to California and this is the fourth stamp we’ve gotten today!’ And I said, ‘Would you like to see a video?’ And they went, ‘Oh we don’t have time for that!’ So I said, ‘You could go for a hike?’ But ‘Oh we don’t have time for that either, we just want the stamp.’ And it’s like oh, ok.

So, on one hand, the NPS status of PETR attracts a group of people who might not be interested in engaging with the monument, but on the other hand, that same status gets more people visiting the site than would visit a state or regional park. One VIP had a much more positive outlook on the effect the federal status of PETR has on the monument and its visitation:

People are so different. Like, I think it’s great that we have a movie, cause some people want to watch a movie and some people are like oh hell no, I’m not going to sit here for 20 minutes. Everybody wants to have something different. The older folks that are going around to see all of these places, it’s just love for the NPS concept. They’re not going to camp or hike, they’re just going to see these amazing bits of the world that they haven’t had time to experience before, and I think a lot of the younger families do that too.

In the focus group discussion, the employees expressed a similar frustration with the instances of visitors showing disinterest in anything beyond the stamp, “to us park rangers it’s a little like, I see the stamp as reflective of having formed a connection, having really engaged. Have you really formed a connection if you just drive up, get a stamp, drive away? But, maybe

there is still some value in it, or maybe it'll motivate them to come back in the future. But sometimes those sorts of very quick connections are mystifying.” However, the staff also discussed how the NPS status of PETR has the potential to act as a tool for encouraging engagement between the land and a wide range of visitors:

There is this kind of element of like yeah, it's our goal to encourage connection between our resources, namely the nature and culture and history and all of that, but we do kind of dangle this carrot of like, there's this cool T-shirt to buy and you can get your stamp, gotta catch 'em all. Then, when they come up on the patio to go to the gift store, maybe we have like, a demonstration out here or we have advertisements about programs and guided hikes and stuff, so I think to a certain extent people will come to parks because they do like the gift shops and they do like the air-conditioned visitor centers, but then it's our goal to kind of like capture those people and lead them to deeper connections.

This “carrot and stick” idea, guided hikes, and patio demonstrations are just a few examples of the many methods utilized by the staff to encourage visitors to slow down and learn about PETR.

Visitors

PETR's visitors are one of the most influential entities at the monument. They have a significant impact on almost every aspect of the site and much of the monument is designed with their presence in mind. PETR aims to educate visitors on the land and offer them opportunities to engage with the resources of the monument, but this goal is secondary to the need to mitigate the potential harm visitors could cause to the resources. One VIP explained the duality of introducing visitors to the environment: “Visitation is good for people understanding why we want to protect the resources, but on the trade off it causes damage to those resources, so it's always very much a balance.” This balance is difficult to achieve, but VIPs have a variety of strategies to achieve that goal.

Given that VIPs represent the NPS, they are given advice and guidance by employees on how to interact with visitors. These guidelines are generally to maintain a friendly, open composure and be willing to answer any questions visitors might have. Some VIPs are comfortable approaching visitors on the trail to offer insights while others prefer to wait for the visitors to come to them. VIPs have the option of working customer relations at the information kiosk or not based on their interests. The VIPs who decline to work at the kiosk tend to be less social and less inclined to engage visitors unless prompted. Some VIPs express frustration with the visitors, who they feel may not be as appreciative of the monument as they are themselves, although they tend to agree that “a majority of people do care. I mean, they wouldn’t come if they don’t have some interest and some caring.” VIPs were also dutiful in pointing out that as an NPS site “the monument was created for people. All people” and that “[PETR is] for the American public. The petroglyphs are preserved for the benefit of the American public and to educate them.” The employees also reported working hard to educate the public about all aspects of the monument and how to most responsibly interact with the land while visiting. In the words of the employees, education is “our ultimate goal as interpreters and educators.”

All 15 VIPs reported that they considered PETR to have a positive effect on visitors: “There’s something special about being out in nature like this. It gets much easier for everybody to obtain that inner peace. I think you can see... the ones who truly appreciate being out here.” When prompted on how specifically they encourage visitors to connect with PETR and achieve this positive effect, all VIPs agreed that just being on the land, even for a short period of time, is beneficial. One VIP stated, “The more you know, the more you’ll love this place” and another later added, “I hope that just exposure to what is here sparks a question in their mind, sparks an interest. I would just encourage them to see what they can see... They might come back with

more of an interest.” To achieve this, VIPs often encourage visitors to hike one of the longer trails in Las Piedras Marcadas or Rinconada Canyons if they’re able, although visitorship is still overwhelmingly centered on the much smaller, much more accessible Boca Negra, which is the only canyon that features a road into the canyon. This allows visitors to drive within just a few hundred feet of the petroglyphs and then walk a very short distance on paved trails to see the images.

The focus group reflected the same feelings about the benefits of just being on PETR and the same issues regarding the balance between visitor experience and the health of the land. When discussing how visitors might best experience the monument, employees described how their ideal visit for someone would include deep, meaningful connections with the land. However, they then stepped back from this idea and recognized the validity of the different types of connections that visitors could form at PETR:

B: Something that I try and remember every day is that people engage with the resource... in every park in different ways. One way is to sit there and do a junior ranger program, another is to go on a hike, and another is to watch the video and buy things in the gift shop. Everyone has their own way of engaging and connecting with the resource and with the park, and so we try to encourage this deeper connection, but everyone engages on a different level, and as long as they have a sort of connection, or walk away with a respect or a positive memory of that park, then the park did its job.

C: Yeah, I think sometimes the parks service has our expectations of what the visitors should do, but that’s not based on what the visitor really wants to do... Or what they will do.

D: The visitor does what the visitor wants to do, whether or not they should.

C: Yeah, we say, you should be visiting this way! But that’s not- Our role is just to provide them with opportunities and protect the resources.

In a perfect world, every visitor would form a deep, personal relationship with PETR, but realistically the staff seems to be satisfied as long as they can help every visitor have a good experience while visiting the monument: “We have various types of connections that are forming

here... but they fall much more into the beginner type, where people are coming and they don't have many connections to this place and we're sort of like the front line of helping to guide them." The staff expressed a sense of pride at being able to assist and guide visitors towards the deeper connections that are possible at PETR.

The Development Around PETR

Development is encircling PETR slowly but surely. There are already neighborhoods and businesses on the north, south, and east sides of the monument, and to the west there is a shooting range, an Amazon fulfillment center, and an entire airport. The east border of the monument is traced by Unser Boulevard, a four-lane highway that ultimately cuts through the monument along with another four-lane highway, Paseo del Norte, that does the same. Homes push right up against the land of the monument in many places to such a degree that many of the VIPs refer to as PETR their "backyard." This close proximity has both negative and positive effects and is a very polarizing issue for VIPs. Figure 11 shows how sharing a fence with neighborhoods has become a reality for many of the monument's borders.



Figure 11: View of the Taylor Ranch neighborhood from the top of the Mesa Point trail in Boca Negra Canyon. Nolen 2024.

Struggles

The proximity of development to PETR presents many impacts on the monument that are often considered to be negative. Many VIPs and the employees use emotional language and expressions to describe their feelings about development around the monument, “A: We’re getting developed all around us right now, which, as a wildlife corridor, logistically speaking, is horrible- B: Terrifying! C: Bad.” Some VIPs are very concerned about a future where the monument is “boxed in” and loses its biodiversity and the views that many VIPs value so highly. One VIP pointed out the unsustainable nature of the development on the West Mesa: “Cities and areas need to look at what water they have available and limit themselves to what they can support... There’s no water up here. If you’re putting down pipes, you’re having to go through lava which is hard to do... There’s a proposal for a development out West, I think, and they’re proposing like, I think, 20,000 homes... You gotta plan.” Another expressed concern about the prioritization of development over the protection of PETR regarding the extension of Paseo del Norte in the early 2000s: “It’s a shame. I wish they would have done something else than cut through the monument. Once they cut through one part, they’re just going to let them cut through another.”

Three of the VIPs expressed frustration with the noise pollution caused by the monument’s close proximity to major roads and noisy businesses, “you can hear the airplanes going over and the road traffic. Until you get back into the canyon, you can still hear it from Unser.” In addition to the noise from the airport and traffic, VIPs report hearing gunshots from the shooting range when hiking the Volcanoes Day Use area. Gunshots can even occasionally be heard from illegal target practice, another holdover habit from before the land was under federal

protection. The focus group noted how these issues are not limited to the current day but have been present in the area since long before the monument's designation:

C: You can even subdivide the modern impacts of like pre- and post-park, or monument, designation. The types of utilizations have changed a lot and there was a lot of like, partying and landscape dumping and all this-

All: Shooting

C: Yeah, shooting, all those impacts.

B: Mining

Today, a particular developer is frequently accused by VIPs of having a disproportionate impact on the monument: Pulte, a home construction company that frequently works on the West Mesa. This developer is sometimes used as representative of all of the development on the west side and has been named as particularly flippant about its impact on the land surrounding development sites. One VIP recounts their frustration when cleaning up litter on the monument, “in 45 minutes, I picked up two huge trash bags full of trash. So, I went on the Pulte Facebook page and posted pictures of me and my trash, and I got a phone call! From Pulte, and they were better for a while, but they’re not good.” VIPs extend an enormous amount of effort to clean up the litter and dog waste from the trails. One VIP remarked how it was a “never-ending cycle,” but that it was easier to maintain with more VIPs on the trails.

Some VIPs represent the opposite opinion regarding development and do not see a problem with it as long as it remains in check:

I think that’s only gonna be a natural progression. As long as it doesn't interfere with the monument or cause damage to the monument I’m all in favor of development. Would I want oil wells being dug along the monument? No, probably not, but anything that’s not going to cause detriment to the monument... Homes, schools, have a school along here where the students can come out and spend time on the monument itself. That kind of thing.

Even further on that spectrum, there were those few VIPs who imagined a future where PETR acts as a sort of “Central Park of Albuquerque,” surrounded by skyscrapers on all sides

but still preserving a piece of nature in the middle of it all. For these VIPs, development like the Paseo extension has no meaningful impact on the monument and serves simply to fix issues like the “terrible” traffic problem on Golf Course Road. Such developments are described as “inevitable” with the monument in the future described as having the potential to act as a “neat little pocket” of natural and cultural history.

Advantages

To contrast some of the more difficult sides of the development of an urban center so close to PETR, eight of the 15 VIPs, just over half, listed the close proximity of the monument to the city as an invaluable asset that truly sets PETR apart from other NPS sites. One VIP explained, “I don’t think any [other cultural sites] are quite so easily accessed adjacent to an urban area. You can walk to Las Marcadas Park or walk a couple blocks from your home, or any of the places even along Golf Course, you can go out a door and literally walk into a sacred landscape.” VIPs were also appreciative of the educational opportunities presented by being so accessible, “[PETR is] available in a way that a lot of protected lands are not. To a whole range of people in terms of their socioeconomic situation. You don’t have to travel. There’s sort of a socioeconomic- I don’t know if I’d say a divide, but it certainly plays a role in whether or not families can access public lands. But in this case, you can just get in your car.” Employees take advantage of these opportunities by hosting educational events at the local library and inviting schools onto the monument for field trips. The focus group discussed how PETR provides an important resource for community education: “As people... in society are further disconnected from those elements, places like this become an opportunity to engage with those things.” Finally, the monument’s proximity to the neighborhoods is also cited as a main reason that many VIPs can volunteer as frequently and as reliably as they do.

The Neighborhoods of PETR

The neighborhoods act and are treated as a separate entity with influence on PETR. The monument currently had neighborhoods on three sides, the north, south, and east, with plans for this growth to eventually spread to the west as well. The neighborhoods have two main aspects that affect the monument: The neighbors, their dogs, and social trails.

Neighbors and their Dogs

Neighbors are distinct from visitors for several reasons. Firstly, they interact with the land much more frequently and for much longer periods as they often live directly next to or within walking distance of the monument border. This experience also affects their behaviors on the monument, as many of them have lived in the area for longer than the land has been designated a national monument and are therefore often used to different regulations or trails than the ones that are in place today. Secondly, they are much less likely to seek out information at the visitor center and therefore are not directed to the same areas as visitors are. There are even trails that, while open to anyone, are not advertised to visitors and are utilized almost exclusively by neighbors. In this way, neighbors affect the erosion of the monument differently than visitors. Additionally, if the employees want to share information with neighbors, they will often attend HOA meetings or other neighborhood events, rather than posting anything at the visitor center. Thirdly, their goals on the land tend to differ from visitors. VIPs report that visitors universally seem to seek out the petroglyphs, while neighbors are more often on the trails for exercise or to walk their dogs. Finally, according to the VIPs, neighbors are far less likely to respect the rules of the monument, specifically staying on the designated trails and keeping their dogs on leash while inside the monument border. The main issue with the latter infraction is that

it threatens the safety and comfort of visitors, other dogs, and the off-leash dog themselves.

Coyotes are very present on PETR and have been known to bait dogs away from their owners to hunt and maul them. One VIP reported that they've had three dogs attacked by coyotes since living near PETR, two of which were off leash.

A common experience among VIPs is to ask a neighbor to respect PETR rules, then to have the neighbor argue that they don't need to follow those rules because they've lived in the area for so long: "There's a lot of neighbors who constantly use it, a lot of neighbors like to say, 'Well I've been living here for 30 years and there was never an official trail back then, so I'm gonna use my trail that I've been using for 30 years.'" Some of the neighbor's behaviors are so predictable and consistent that VIPs can spot someone committing an infraction from down the trail and name them just by sight. VIPs do not and cannot write citations for these infractions, they can only report the behaviors to the Law Enforcement Officers assigned to PETR. Some VIPs report that they've asked the same neighbors to change their behaviors so many times, and have consequently been yelled at by these neighbors so frequently, that they "don't really say anything anymore." When asked why they felt that some neighbors behaved this way, VIPs explained that many people feel "entitled" to the monument and that many of them "basically think this is an extension of their property."

While this sense of ownership might have its challenges, it also tends to inspire a sense of responsibility that PETR can cultivate. Many of the VIPs interviewed are also neighbors of the monument, an identity that is important to them. VIPs often introduced themselves with their name quickly followed by which neighborhood they live in. Many VIPs report that within their neighborhoods, even if their neighbors do not volunteer officially, they do seem to have a sense of respect for the land: "They like showing it off to their friends and their families." This attitude

is thanks in no small part to the efforts of the monument staff to engage neighbors with the monument through tools such as information booths and guided hikes. One VIP recounted how, “the rangers tell us we’re their stewards, ‘cause we’re right next door” and another agreed that, “I think that if people have kind of a sense that this is theirs, then they take better care of it.” While not every neighbor shares this idea, all VIPs agree that it is the “vast minority” of people who do not respect the monument. Most people are “proud of this and where they live.”

In the focus group, the staff noted how they take advantage of this sense of pride by using it to engage the neighborhoods in educational opportunities which, in turn, further the security of the land: “If you know about the park and its resources, why the petroglyphs are important and why our desert ecosystems are important, and so on and so forth, then you have that positive connection that allows you to care for the monument and care about its overall wellbeing, and there is understanding, I understand why you’re closing this trail, I understand why you’re putting up these barriers to keep people on a trail.” Once these connections have been established, the staff feel that they are powerful tools to help PETR achieve its goal of conservation:

A: A lot of these connections, especially in our volunteer team and those folks, really does a lot of good for us, because they can reach out a lot more directly. As private citizens, they can do more lobbying than you can as a federal employee... We do what we can in our official capacity but the fact that there are these people developing connections that, as citizens, can choose to act however they want is really cool for us.

C: Yeah, helps us achieve our goals and it’s still a challenge but it’s great to have citizen support.

B: It’s great to have that voice amplified so it’s not just, oh the park service says this-

C: Again!

B: Yeah, they always say this! It’s like oh, there’s some other people saying it too now.

A: And I think there's a different, it reaches people differently when it's an official statement from a federal agency versus just like, a real person down the street really thinks this important so, yeah, I think it helps a lot.

Social Trails

PETR has over 140 miles of social trails. Some are historic trails that have been decommissioned, while others have been created more recently through negligence. Social trails are hugely impactful on the monument, as wherever there is a social trail, the plants that were there before must have been killed to make room for it. The vegetation of PETR is adapted for a high-altitude desert climate and while it may be resilient against extreme weather, it can be very delicate when faced with increased foot traffic or other disruptions. When the plants and biological crust that protect the sandy soil from erosion and help retain moisture are destroyed, the consequences can be dire for the landscape. In PETR, these consequences are usually the formation of social trails, the antithesis of designated trails and a major concern for the monument. While designated trails are carefully planned and mapped to protect resources and improve the longevity of the trail, social trails are simply created wherever is deemed most convenient. One VIP explained how easily these trails come about: “Those [footprints] will be made deeper and sharper once we start getting monsoon rains. As soon as you start destroying this sort of crust or once you interfere with the shallow root systems of this vegetation, you really start to destroy it.” These trails can be created within a matter of days but take years to disappear: “It takes a long, long time for things to heal, for that microbiome to grow back over it, to reclaim the areas that were damaged.” A formerly designated trail that has been decommissioned can be seen in Figure 12. This trail has not been in official use for several decades, but illegal foot traffic, damaged patina, and slow-growing vegetation show just how long it can take for the land to reclaim these areas.



Figure 12: Prominent social trail at the Volcanoes Day Use Area, also featuring lava rock with damaged patina and a sign redirecting visitors to the correct trail. Nolen 2024.

Social trails can be found everywhere on the monument, but they are much less frequent in areas that feature cables. On the mesa top, there are so many social trails that it is extremely difficult to distinguish them apart from the designated trail. VIPs describe this area as a “spiderweb” and the presence of the social trails combined with the lack of signage or cables causes many social trails to be regularly used, perpetuating the cycle of confusion. One VIP explained why social trails are problematic for PETR:

A lot of the times [social trails] cause extra erosion ‘cause they’re going up, say... the side of a cliff. It’s causing erosion ‘cause it’s too steep, the angle that it’s going at, so a rainstorm comes through, and all of a sudden we’ve lost three boulders with petroglyphs on them because they just get wiped away. Other ones are problematic because, say, they cut through an archeological site, areas that we really don’t want people to be messing with. A big issue on the volcanos is most of our partners with the pueblos and tribes don’t want people climbing to the top of the volcanos, they’re incredibly sacred sites and the social trailing on them is really bad, so it’s really hard to stop people from climbing on them up there. ‘Cause they’re like, ‘I’ve done this for 30 years.’

Social trails can also harm the desert patina that covers the basalt and gives the rock its dark color. This patina is what allows for the creation of petroglyphs and takes decades to form. If the rocks are moved or kicked over by accident, it's easy to see that someone was off the trail and exactly where they went, "it's obvious... Because the stuff gets turned over and it turns white where it gets displaced."

The focus group briefly noted similar issues with social trails as VIPs, namely convincing members of the community who have been in the area for decades to stop the use of their favorite social trails, but they chose to focus on the designated trails for their discussion.

Findings Summary

There are many more-than-human elements that create, sustain, and utilize PETR. The landscape, cultural resources, surrounding development, and adjacent neighborhoods all work together with the monument to perpetuate a culturally, historically, and ecologically invaluable national monument that continually offers opportunities for interactions with humans on the land. Through these interactions, PETR incorporates its human staff, volunteers, visitors, and neighbors into complex relationships both for its own betterment and the betterment of the communities around it.

CHAPTER 6: Discussion

This project has demonstrated how the volunteers and staff of PETR hold a deep respect for the wide variety of nonhuman entities on the monument and use their language, actions, and methods to honor these entities. Staff and VIPs consider it their responsibility to guide visitors to the monument on how to connect with these entities as authentically and meaningfully as possible. At PETR there is a continuous emphasis on encouraging visitors to move beyond their own human-centered perception and experiences to consider the fuller, hybrid world around them (Zimmerer 2000; Kirby 2008). There is a limited and shrinking number of spaces in the world dedicated to learning how to decenter the human, yet PETR provides several opportunities to explore this rare gift of a new perspective. Firstly, the monument's landscape and cultural resources are often so impactful that they force visitors into a reconsideration of their place in the world, bringing into question the role of the human. Secondly, entities such as signs and maps guide for visitors who may be novice at nonhuman connections on how to best engage with the land. Thirdly, the close proximity of neighborhoods, while undoubtedly a challenge that must be handled mindfully, offers a unique opportunity for the formation of deep, impactful relationships between developments dedicated to humans (housing) and those dedicated to nonhumans (PETR). Finally, the Volunteers-in-Parks program is an immensely effective example of how to successfully foster authentic, long-lasting reconnection with the more-than-human off the page and in the real world. All of these elements are now explored in more detail.

Petroglyphs, wildlife, the view: things that make you think

The PETR staff take their role in advancing a potential future of successful cohabitation with the growing human landscape very seriously and work to provide different opportunities for

engagement based on the needs of each individual visitor. Based on the focus group, many people who come to the monument fall into a “beginner” category of visitor, or those without many conscious connections to the more-than-human. The staff expressed how they felt a responsibility as the front line in guiding these beginner visitors towards chances to potentially form or improve their connection to the nonhuman. This line of thinking opens the door to the idea of intermediate and advanced categories of visitors. If beginner visitors are those with no connection to or knowledge of the more-than-human, then intermediate and advanced visitors must have either some or significant connections and knowledge. Out-of-town visitors could broadly be used as an example of the beginner category, as they are often visiting from a place of convenience rather than for the sake of the monument and likely have never had the opportunity to engage with PETR before. Neighbors might be considered an example of intermediate visitors as many frequent the land but might not consider the interconnectedness of the relationships present there and where they, themselves, factor into that system (Tillman 2015; Norman 2021). Finally, VIPs would be an example of an advanced visitor.

Visitors to PETR encounter countless nonhumans that make the monument what it is (Robbins 2012). The petroglyphs, through their own agency, reveal themselves how and when they want to. Per the monument’s policy, PETR staff and volunteers will not interpret these images for visitors, instead insisting that these humans take advantage of the opportunity offered by the petroglyphs to consider how they relate to nonhumans that are connective through time and space. They attract hundreds of visitors who are interested specifically in seeing these historic images, wielding significant influence over which trails are used the most based on their location and frequency. Through the informational movie at the visitor center, pamphlets detailing different aspects of the monument, discussions with VIPs, and various signs on

petroglyph viewing trails, visitors have several ways and opportunities to engage with the petroglyphs. These images are connections through time that paint a bigger picture than the monument, the Albuquerque area, or even the state of New Mexico. The petroglyphs are an invaluable look into New Mexico history including Puebloan traditions and Spanish rancheros. With their striking imagery, longevity, and intrigue, the petroglyphs are not just a tool for human communication but are connective entities in their own right. Through experiences with the petroglyphs, humans are compelled to remove themselves from the center of their experience on the monument and instead consider the cultural, historical, political, and spiritual context in which they stand (Braun and Castree 1998).

For those who are willing to experience the sense of awe and place of the human within the world, the viewscape offers a connection to a far-reaching reality, one which has been felt by Puebloans for centuries and that places visitors within the context of hundreds of miles worth of geology, culture, and history. The interviews reveal how the humans on and around PETR want the growing human landscape to work within this context and be mindful of the more-than-human as it develops (Tillman 2015). The view is itself an entity at the monument—something to be protected and an element under threat. Future development of the West Mesa, as guided by the Integrated Development Ordinance—itself an agent on the landscape—will no doubt provide ongoing opportunities to explore the tensions between the pressures to simultaneously provide for the needs of humans while maintaining the needs of the more-than-human.

Through connections with the wildlife of PETR humans are consistently pushed to think about the world and how their actions will impact the lives of the many species that they encounter on the monument (Bear and Eden 2011). The requirement that dogs be kept on leash was made largely to keep these animals safe from coyotes. When it rains, the staff put out signs

asking visitors to watch for millipedes on the trails and roads to prevent these animals from being crushed. Conversations on the monument are routinely interrupted by the thrill of spotting a roadrunner. These are just a few examples of how humans at PETR are held accountable for their place in the world relative to nonhumans (Benson 2019). The increasing fragility of the landscape and the threats to these species caused by both visitor use and growing urbanization provide a sense of urgency in the staff and volunteers to communicate these relationships to visitors as quickly and effectively as possible. VIP comments from the sections on the desert climate and the wildlife and vegetation reveal an ongoing and growing sense of concern among PETR stewards for the wellbeing of the nonhuman. Without a focus on reconnection, the increasing number and frequency of visitors combined with the proximity of a growing urban center promises to exacerbate existing issues of habitat degradation, pollution, and erosion.

Trails, signs, status: nonhumans that guide us

Petroglyph National Monument was created to provide the opportunity for interactions between the human and nonhumans in an increasingly human-centered area. However, it would be irresponsible to leave these interactions unattended, as humans often lack the knowledge or connection to the nonhuman necessary to avoid inadvertently causing harm to these entities. At PETR, several actors guide human experiences including the designated trail system, pamphlets and brochures, informational signage, and the NPS status of the area as a monument. Each of these entities affects visitor experiences with the monument, both in intentional and unconscious ways.

As stated in the findings, the designated trail system is PETR's main tool with which to communicate its values to visitors. Humans may feel in control of these entities by picking which trail they prefer to hike, but these choices are deeply influenced by nonhumans, who iteratively

recreate and co-produce the reality of the monument by affecting where visitors go and how long they spend there (Barad 2007; Gambel et al. 2019). Visitors often specifically request to visit the trails with the most petroglyphs, and VIPs, recognizing the draw of the petroglyphs, send significantly more visitors to petroglyph viewing trails than other trails. Visitors frequently extend their time in Rinconada and Las Piedras Marcadas Canyons far beyond what is needed to complete the trails to find and observe as many petroglyphs as they can.

PETR staff are constantly brainstorming and implementing ways to mitigate the effects of visitation and development on the monument while improving the connection between the human and the nonhuman (Norman 2021). Visitors and volunteers alike often request more signs pointing out exactly where petroglyphs are located and how to view them. To address those who are frustrated at not being able to spot petroglyphs, the monument staff encourages a reconsideration of the human relationship with the petroglyphs by employing a Puebloan adage that “the petroglyphs will reveal themselves to you when they want to be seen.” The use of this saying is intended to help begin to reframe the relationships visitors build with the petroglyphs as not one of a human being entitled to the use of a commodity but rather as two agentive entities coexisting in the same space (Kirby 2008).

As an NPS site, especially one so close to an urban center, PETR focuses heavily on the education of those humans inhabiting nearby developments to better utilize these entities in PETR’s care. The impact of this process can be exemplified by the different types of trails on the monument. Boca Negra Canyon provides an example. Developed and built in the late 1970s, this portion of PETR was originally the Indian Petroglyph State Park. This state park focused more on the enjoyment of the visitor than it did on the protection of the petroglyphs. Boca Negra Canyon was almost completely paved over for the sake of this park, with the access road going

all the way up to the base of the volcanic escarpment and paved trails covering lava rock to get visitors within just a few feet of the petroglyphs. However, when this and the surrounding area were incorporated into the NPS, drastic modifications were made to the visitor experience on the monument. The two canyons opened to the public under PETR management, Rinconada and Piedras Marcadas, focus on ensuring the health of the environment first, and the enjoyment of the visitor second. The trails in these canyons are not paved, are much longer, and require visitors to stay back from the escarpment as much as possible to reduce erosion and protect the boulders and images. Each of these decisions stands in sharp contrast with the pre-NPS Boca Negra, where the escarpment features as a kind of playground for visitors despite risks of erosion and damage to petroglyphs. Through the designated trails and signs of Rinconada and Piedras Marcadas—which were developed to prioritize nonhuman wellness—visitors are obliged to take responsibility for their time on the monument and to consider how their presence impacts the nonhumans around them (Tillman 2015).

Neighborhoods: competitive allies

The relationship between the monument and the neighborhoods surrounding it is multifaceted. The humans of the neighborhoods take advantage of the open space provided by PETR, a symbiosis that could improve their connection with the monument yet, if left unchecked, also runs the risk of harming nonhumans. Interestingly, the PETR interacts with and considers the neighborhoods differently than they do other types of development around the monument. Rather than exclusively expressing concern about the neighborhoods, the staff approaches these entities almost as if they were an additional resource to the park, something to benefit PETR and advance the monument's goal of preservation (Tillman 2015). The monument does regular outreach events to neighborhoods. These events might include a touch table with the

pelts or skulls of different animals that are commonly found both on the monument and in the neighborhoods, descriptions of the geology explaining how the land of the neighborhoods was formed, and guided hikes from local neighborhood access points onto designated trails created specifically to meet the needs of each neighborhood and reduce the use of unregulated social trails. PETR consistently pushes the idea to the neighborhoods that they are allies of the monument with a responsibility to recognize the needs of the land that they inhabit (Tillman 2015).

As the area of the West Mesa continues to be developed, these efforts of PETR will only grow in importance. There exists an ongoing disconnect between the humans in the area and their understanding of the agency and needs of nonhumans (Norman 2021). In the late 20th century, humans in the newly built neighborhoods on the West Side were looking for decorations to include in their homes and yards to invoke the aesthetic of the land around them. Due to the poor community education on local history and Pueblo culture, they turned to the petroglyphs as a solution. Six boulders containing petroglyphs were removed from their positions and taken from the land before federal protections were put in place (Froeschauer 1994). Their location today is unknown and their meaning is irrevocably altered. Similarly, in 2022, Amazon purchased a large portion of land just south of PETR and built a large, multistory fulfillment center, blocking the sightline between Mount Taylor and the volcanoes and drastically altering the landscape. This building is located in the Westland Business Park, a name that promises more development in the future, despite the damage done to the viewscape that is so integral to the monument. These examples are just a few of many that exemplify the importance of the outreach programs employed by PETR to engage neighborhoods with the monument (Norman 2021). Reframing the neighborhoods as future stewards and allies of PETR has the potential to

reshape the attitude of development towards the monument in general. If PETR can continue to build upon its relationships with the neighborhoods surrounding it and successfully foster these connections, then there is the potential for a future in which the neighborhoods of PETR need no longer be considered exclusively competitors or ever-growing enemies, but may rather become increasingly powerful allies with moral and political influence over the values and impacts of other developments around the monument (Braun and Castree 1998; Zimmerer 2000).

Developments on the West Mesa, which reflect the growth of Albuquerque, are continually forced to consider and adjust themselves to account for PETR's borders and nonhumans. These entities are bound by the legal restrictions in place to protect the monument and its resources. The competition between PETR and the neighborhoods for space while simultaneously supporting each other's well-being places these two entities in a unique and ongoing relationship.

Volunteers-in-Parks Program: a more-than-human agent

With almost 70 members as of Summer 2024, the VIP program is immensely impactful on the monument. The program works with the monument to maintain the land and the nonhumans that coexist there. By creating a united, consistent goal and developing strategies and standards on how to achieve it, the VIP program constitutes a tremendous force that continually remakes the world around it (Barad 2007). The VIP program offers its human participants guidance on how to protect the ecological well-being and aesthetic of the land by educating and redirecting visitors and neighbors, and how to assist with the prevention of excessive erosion and extension of the longevity of the petroglyphs by facilitating the use of the designated trail system. Through these and other understandings of the more than human, this program empowers its participants to perform countless examples of outreach to engage and reconnect

humans to the more-than-human world (Norman 2021). The VIP program constitutes a vital intermediary that connects countless other nonhumans at PETR and the monument could not function the way that it does without it and its volunteers. The VIP program is not just arbitrarily a part of the NPS, it fosters deep and complex connections between humans and nonhumans. Volunteers are incapable of removing themselves from the monument or its processes as they are a part of what constitutes its design. Through the program they are actively be-ing a part of PETR (Kirby 2008).

The VIP program operates as an agent on the landscape, moving past the individual personalities of its individual human participants. It acts as an embodiment of the NPS's values and goals, with VIP members expressing their experiences of being part of the program as a "responsibility," an "honor, and a "privilege." The VIP program at PETR has fostered intimate connections between humans and nonhumans and provides an example of the potential of post-humanist theories off the page and in the real world. With continued effort from the staff and volunteers and ongoing cooperation with the City of Albuquerque, PETR is poised to provide every visitor and neighbor with the opportunity to one day advance to the same level of connection as the VIPs. Recognizing and working with nonhumans on the monument has created an increasingly interconnected community that is engaged in the well-being of this irreplaceable site for today and well into the future.

Research Limitations

As a Masters' thesis, this research is necessarily limited in scope. Due to time constraints and the breadth of the study, I was not able to complete the ethics review process for the Tribal communities affiliated with the monument and the petroglyphs. Without these reviews, there was not a clear, ethical path to give these perspectives the weight, attention, and respect that they

deserve. Instead, they will be the focus of any future projects related to this topic. A necessary change for any future research on this topic would require the official inclusion of tribal perspectives.

Both the interviews and the focus group were conducted in late February into early March of 2024. Due to this time frame, the weather and other seasonal elements had an unavoidable impact on the results of this study. Ideally, these results would have been collected over a more temporally diverse period, however, as this was not an option for this study, several potential impacts of this timeframe are outlined now. The length of the outdoor interviews, the presence or absence of nonhumans with different weather tolerances, and the number of humans present at the monument were all elements that had the potential to be affected by the dates of the study. Although no VIPs mentioned any adverse reactions to the weather, there were several interviews conducted during windy and snowy conditions, which had the potential to limit the comfort of the participants and consequently the length of the interviews. Additionally, if the study had been conducted during warmer weather, different nonhumans might have featured more prominently in the interviews and focus group, such as plant and animal species with a preference for Summer or Fall months. Finally, the interviews and focus group were conducted during PETR's slowest tourist season. This decision was made partially to avoid overburdening the VIPs throughout the project but undeniably affected how many human visitors were present on PETR during the data collection, a variable which could have affected what types and how many nonhumans were encountered during the interviews. Each of these restrictions was unforeseen or unavoidable for this study and will be considered during any future research on this topic.

Further research on this topic could also include a comparative study to explore how different NPS sites engage with the VIP program, a national program. Other NPS sites would be investigated using the same methods as used in this study to identify and analyze both the nonhumans of other units and how their staff engages with these entities. This data would then be compared to the results from this project to determine any differences and similarities. Similar strategies that result in an improved connection with the more-than-human at all sites would reinforce the efficacy of the methods employed by PETR and similarities between strategies that weaken or neglect the more-than-human would confirm any weaknesses and highlight the need for change. Strategies employed by other sites but not PETR would offer insight into potentially effective policy changes for PETR, or vice versa, strategies featured at PETR could be shared with other units to further their goals.

Future research into decentering the human in natural resource management might also directly investigate visitor experiences themselves. While this study chose to focus on land managers and their volunteers, future work into the experiences of visitors would also gain valuable insights as they are the demographic most focused on by the NPS. Visitors could be surveyed or interviewed at the beginning of a hike or upon arrival to an NPS site and then again before they left the site to gauge the difference in their understanding of and connection with the more-than-human and their experience of the site in general. These are just a few potential ideas to use to further engage with the ever-evolving fields of post-humanism and resource management.

Future Management Recommendations

This study offers several insights that provide recommendations to PETR managers to further their goals of community education and engagement. Visitors are given frequent

opportunities to experience and learn about the nonhumans of PETR, with one exception. The viewscape of the monument, while easily accessible, is significantly underrepresented in the literature available to visitors. This literature understandably focuses almost exclusively on physical nonhumans, such as the petroglyphs and the wildlife, as these entities are more straightforward. The emphasis placed on the viewscape by the VIPs and the employees combined with growing threats to this entity such as large building projects on the West Mesa suggest that an increased effort to communicate the viewscape's value to the public and visitors would benefit PETR for the future. This message could be achieved using an expansion of PETR's current management strategies to include the viewscape in their literature, signage, outreach programs, and trail system.

A revision of the resources available at the visitor center would also help PETR in its goals. Visitors to the visitor center tend to expect a traditional center with displays offering information on the monument. However, the visitor center at PETR was developed from a preexisting structure and therefore has limited space that is used only for employee offices, which are not open to the public, and a gift shop. Visitors have just a few options to learn about the monument on the patio of this building before going to a trailhead: The outdoor movie, a few signs which lack a cohesive message, and the information kiosk, featuring a VIP. If the patio were converted into a space that more closely resembles a traditional visitor center, with information on the geology and history of the area, visitors would be more likely to engage with these messages before visiting a trail. Despite its comprehensive message, VIPs report that not everyone wants to take 20 minutes to watch the monument's movie, "A Beautiful Mystery," especially if the weather is poor or they only have an hour before they need to leave. A display or several displays featuring the same messages as the movie would offer the information to a wider

demographic, utilize the space on the patio more efficiently, and more effectively inform visitors about PETR.

The literature available to visitors also lacks a cohesive message and therefore misses opportunities to guide visitors in their experiences at PETR. There are several pamphlets available to visitors, including the official Unigrid brochure, another pamphlet with the same information in a different format, maps of only two of the petroglyph viewing trails, Piedras Marcadas and Rinconada, a map of the Volcanoes Day Use Area, a separate pamphlet about the geology of the West Mesa, another specifically about the desert millipedes, and a few other seemingly random choices. Without a dedicated visitor center, the literature visitors take away from the information kiosk are a vital part of how PETR communicates its message. However, the literature lacks a cohesive message and is spread over several pamphlets. VIPs offer visitors maps of the trails contained in these pamphlets, meaning that visitors going to different canyons each get different pieces of the overall message without access to one comprehensive document. One larger brochure featuring all of the information PETR wants to convey including details on the geology, history, and maps would be more accessible to visitors and would be easier for VIPs to distribute.

These suggestions are only possible because PETR has so successfully developed and utilized strategies that are highly effective at facilitating the relationships between humans and nonhuman. Through their methods, the monument sets the stage for advanced connections between visitors and the more-than-human. Humans are constantly offered opportunities to engage with nonhumans and PETR guides these interactions to be as authentic and impactful as possible. The monument's outreach to the growing neighborhoods around it has successfully grown its VIP program to such a degree that it not only benefits PETR but has become an

integral part of the monument's function and being. The continued effort of the staff to engage its visitors and neighborhoods with its nonhumans through community outreach and educational opportunities has successfully fostered an environment in which the nonhuman is considered and valued by the humans around the monument.

CHAPTER 7: Conclusion

This research examines the interactions between humans and nonhumans at PETR to answer the question: how does PETR interact with the more-than-human to achieve its goals of environmental conservation and community education? To develop an answer, nonhumans at PETR were identified and classified based on the results from 15 semi-structured individual interviews and one focus group of five PETR employees. This data was collected and evaluated using a theoretical framework based on more-than-human geographies and new materialism. These theoretical viewpoints have been developed over the past half-century to challenge the nature/society binary that has been foundational in Western society. With the insight of PETR stewards and the context of these theories, this research mapped the complex system of relationships at the monument and investigated many of these interactions in detail. With an in-depth understanding of the nonhumans at PETR, it then investigated how PETR currently utilizes an understanding of the more-than-human in their management strategies. This new materialist foundation sets the stage for future strategies that honor and recognize the agency of nonhumans at PETR, meaningfully integrate surrounding human and more-than-human communities into the care of PETR, and ultimately help PETR achieve its goals of conservation and education.

APPENDIX: MANUSCRIPT DRAFT

To the west of Albuquerque are thousands of images etched into miles of ancient lava rock, known today as Petroglyph National Monument (PETR). This site faces many challenges in meeting its goals of conservation and education, but none so timely as the encroaching development of the City of Albuquerque. As more humans move to Albuquerque, PETR is forced to continually adjust, and its resources are increasingly placed at risk. Albuquerque's relationship with PETR offers the opportunity to examine how natural resource managers and their volunteers employ concepts from geography, post-humanist theory, and related fields, as they advocate for the nonhuman entities of the monument in a culture that privileges the human. This project investigates the land management strategies of PETR and identifies how the policies and methods of the staff and volunteer program, Volunteers-in-Parks (VIP), engage with post-humanist concepts.

PETR protects one of the largest petroglyph sites in North America with over 25,000 images. The meaning behind these images is intentionally left ambiguous by PETR to respect the preferences of tribal consultants, as they are incredibly sacred to many different cultures. The monument's designation was secured in 1990 PETR has since done its best to protect its resources. The monument includes all 17 miles of a volcanic escarpment in addition to five cinder cone formations farther west. The proximity of these formations to Albuquerque offers opportunities for public education that would otherwise be unobtainable and makes community outreach and engagement for the monument much more achievable. As the disconnect between nature and society grows, these outreach efforts are becoming increasingly invaluable.

Literature Review

For decades, geographers have worked from a position that there exists a fundamental separation between the natural world and human society, known broadly as the nature/society binary (Norman 2021). Descartes claimed the nature/human distinction was a difference between the body and mind respectively, dividing the physical reality of humans from their epistemological understanding of the world (Coole and Frost 2010). This Cartesian dualism arranges the world into a hierarchy with society placed on top and nature subjugated below and insists that matter is neither creative nor performative but is rather passive and subject to the forces of humans (Norman 2021; Gamble et al. 2019). Such beliefs have led to a disconnect between the physical landscape and human activities (Braun and Castree 1998). However, since the late 20th century, many thinkers have increasingly challenged and problematized this idea (Braun and Castree 1998). By confronting the limitations of a nature/society (or human) binary, it becomes possible to explore more nuanced perspectives on the relationships between humans and their environments. Recent scholarship increasingly embraces hybrid approaches that view nature and society as co-produced and mutually constitutive, highlighting how human activities shape and are shaped by natural processes (Swyngedouw 1999; Braun and Castree 1998). Karl Zimmerer (2000) insists that nature/society hybrids be considered essential when developing conservation policies. Today, integrated approaches to resource management, ecosystem-based planning, and community-based conservation efforts all recognize the need to consider both ecological and social factors when addressing environmental challenges.

New materialism challenges the idea of human dominance over matter by considering a broader notion of agency. Barad (2007) suggests that agency can be neither possessed nor granted, but rather understood as an “intra-activity” or “a doing.” (178). Understanding agency as inherent to matter highlights the active nature of matter as one that changes and reinvents itself in unanticipated and unexpected ways (Coole and Frost 2010). This epistemological shift is not the addition of agency to matter, but rather the recognition that humans do not implement agency in any unique way (Schmidt 2013). Kirby agrees that matter is not passive, but is rather active; doing (Kirby 2008). We are not just humans, says Kirby, but “human be-ings” and humans are but one example of how matter moves and creates reality (2008, 218). New materialism breaks down the “radical discontinuity” used by humans to remove themselves from the material world and deny the agency of matter and emphasizes the responsibility of the human in the co-creation of the world (Norman 2021; Tillman 2015). Tillman outlines how the separation of nature and culture has limited the human capacity to fully understand and engage with the world and argues that the goal of reanimating matter is “an ethical and political task” (Tillman 2015 34-35). New materialism offers insight into how to reengage the human with the material and move past the disconnect into a more authentic relationship with reality. Benson (2019) uses American environmental policies to offer an approach to resource management that focuses on the participation of the human in nature, not the control of nature by the human. Rather than being a force that occasionally interacts with but is exempt from nature, humans might instead view themselves as a part of the systems around them and recognize their part in its iterative change (Benson 2019). New materialism offers numerous advantages for natural resource management and suggests novel ways of understanding the relationships between humans, other species, and the physical environment (Tillman 2015; Benson 2019; Braun 2015).

Methods and Findings

This research investigates the presence and influence of new materialist concepts at PETR. Data collection was two-fold. Individual, in-person, semi-structured interviews were conducted with participants of the VIP program. The initial findings from the interviews were then utilized to design a focus group with staff involved in land management on the monument. There was not a clear, ethical path to give tribal perspectives the weight, attention, and respect that they deserve. Instead, they will be the focus of any future projects related to this topic.

15 VIPs participated in approximately one hour long semi-structured interviews. A strict question-answer interview format was rejected in favor of a semi-structured approach to allow for a participant-led discussion relevant to their interests and knowledge (Savin-Baden and Major 2012). The interviews were conducted within the boundary of PETR to engage participants with nonhumans while the researcher was present (Cresswell & Cresswell 2018). The interview and focus group questions were designed to develop an organic flow of conversation while simultaneously keeping the interview on topic. The data collected from the interviews was used to facilitate a focus group of five PETR employees to address knowledge gaps and include new perspectives from those in professional roles. The focus group lasted for one and a half hours and featured an overview of the study's goals, methods, and theory, then concluded with a discussion. All results were then coded to identify nonhumans frequently found on PETR (Cresswell & Cresswell 2018). Several of these nonhumans are now organized into three main themes: The Resources of PETR, The NPS Effect, and The Development around PETR. Each of these groups are further subdivided to provide insight into each entity.

The Resources of PETR

Wildlife

The staff of PETR consider the wildlife to be stewards of the land, “Even if everyone else were to disappear, the millipedes would still keep breaking down the dead material, the coyotes would still keep the rodent populations in check, and so, those things are just continuing to be stewards of the landscape... Even with us not around.” VIPs frequently express both admiration and concern for the wildlife. Reports describe changes in the wildlife populations over the years, “Visitorship has increased markedly. And when there are a lot of humans roaming around, wildlife gets the hell out of there.” This and several other VIPs reported seeing fewer animals throughout their time on the monument, remarking that there is “less of everything,” indicating a general drop in animal populations. VIPs most frequently associate this population decline with the increase of humans on and around the monument.

Petroglyphs

All 15 VIPs agree that the petroglyphs are a main driving force of the monument. If a visitor is frustrated by not being able to spot a petroglyph, VIPs use a common response that “the petroglyphs will reveal themselves to you when they want to,” an idea that is consistently reenforced throughout the monument’s messaging. VIPs are quick to direct visitors away from asking about the meaning of the petroglyphs, as it is made it clear that the meaning of the petroglyphs is not for visitors (or even the staff or volunteers) to know as they are private and sacred to the people who inscribed them and their descendants. Despite this ambiguity, however, the subjects of the petroglyphs can shed some insight into the relationship between the petroglyphs and their historical context. One example is the Macaw petroglyph which, as the Macaw is not native to New Mexico, implies that the area had historical connections as far away as southern Mexico, where the macaw’s habitat begins.

[insert Figure 1 about here]

The focus group pointed out that, “if there were no petroglyphs in this area this area wouldn’t be protected.” However, the staff also articulated some negatives of having such a specific focus, as many visitors to PETR come specifically to view petroglyphs and nothing else. One employee expressed how, “My first impulse is to send [visitors] to a longer trail that has a more natural landscape, and then they come back and they tell me, ‘Yeah, I don’t have that long, I only have like five minutes. I just want to see petroglyphs and leave.’” With national focus so heavily centered on petroglyphs, the staff struggles to broaden visitor experiences on the monument.

Viewscape

“What an incredible privilege it is to live in what is a tremendously sacred landscape.”

11 out of 15 of the VIPs consider the view to be either nearly or equally important as the petroglyphs and that “the whole landscape is sacred, it’s not just what’s in the monument.” One VIP explained: “[The view] becomes really lovely, because on a clear day, you can see from Santa Fe all the way, I mean, to the Manzanos! And you still see the valley in between... I love that.” This entity is so important that the City of Albuquerque has implemented several legal

protections to preserve the view. These protections include context-sensitive planning decisions and an Integrated Development Ordinance (IDO) to guide future development on the West Side and protect the view and aesthetic of the area.

The NPS Effect

NPS Site Status

The NPS status of PETR notoriously attracts visitors who are not interested in engaging with the monument fully. All VIPs noted that there is a percentage of people who are, “just checking [the site] off a list.” In the focus group discussion, the employees expressed a similar frustration, “Have you really formed a connection if you just drive up, get a stamp, drive away?” However, the staff also discussed how the NPS status of PETR has the potential to act as a tool for encouraging engagement between the land and its wide range of visitors:

It's our goal to encourage connection between our resources... But we do kind of dangle this carrot of like, there's this cool T-shirt to buy and you can get your stamp. Then, when they come... Maybe we have like, a demonstration out here or we have advertisements about programs and guided hikes and stuff... it's our goal to kind of like, capture those people and lead them to deeper connections.

Signage and Maps

As of the Summer of 2024, many of the signs at PETR were fading or peeling from sun and weather damage and others were old enough that their placement had become inaccurate as the designated trails shifted over time. However, despite their concern over these issues, VIPs are satisfied with signs' information and messages. At the recommendation of the VIPs, the employee focus group was questioned about the ongoing project to improve the signs. The employees responded that “the main objective right now is to replace the signs, because we've got new information, new perspectives.” This includes replacing outdated or damaged signs and maps, plus creating and adding new signs.

Designated Trails

The designated trails are the main avenue for the monument to guide visitors. The most trafficked trails are marked by metal cables to reduce the frequency of social trails, which threaten the wellbeing of the land through increased erosion and degradation of the delicate vegetation. Designated trails are designed to protect any archeological sites and the integrity of the land. VIPs described the designated trails as a vital opportunity to engage visitors in the monument: “I see it as an important piece. We wouldn't be allowed to preserve [PETR] if people didn't fall in love with it. So, we have to create that appreciation.” The focus group discussed their role in creating and maintaining this entity, “we're building the trails and signs, so we're humans adding to the nonhuman elements.”

Visitors

PETR aims to educate visitors on the land and offer them opportunities to engage with the resources of the monument, but this goal is secondary to the need to mitigate the potential harm visitors might cause to the resources: “Visitation is good for people understanding why we

want to protect the resources, but... It causes damage to those resources, so it's very much a balance." The employees reported working hard to educate the public about how to most responsibly interact with the land, "education is our ultimate goal as interpreters and educators." Yet some VIPs express frustration with the visitors, who they feel may not be as appreciative of the monument as they are themselves, although they tend to agree that "a majority of people do care." All 15 VIPs reported that they believed being on the land, even for a short period of time, is beneficial. One VIP stated, "The more you know, the more you'll love this place." VIPs often encourage visitors to hike one of the longer trails in Las Piedras Marcadas or Rinconada Canyons, though visitorship is still overwhelmingly centered on the much more accessible Boca Negra. The focus group reflected on how visitors might best experience the monument and described how their ideal visit for someone would include deep, meaningful connections with the land. However, they also recognized the validity of the different types of connections:

B: Everyone has their own way of engaging and connecting with the resource and with the park, and so we try to encourage this deeper connection, but... As long as they have a sort of connection or walk away with a respect or a positive memory of that park, then the park did its job.

C: Yeah, I think sometimes the parks service has our expectations of what the visitors should do, but that's not based on what the visitor really wants to do... Or what they will do... Our role is just to provide them with opportunities and protect the resources.

The staff expressed a sense of pride at being able to assist and guide visitors towards the deeper connections that are possible at PETR: "We have various types of connections that are forming here... but they fall much more into the beginner type... We're sort of like the front line of helping to guide them."

The Development Around PETR

Proximity

Development is encircling PETR slowly but surely. There are already neighborhoods and businesses on three sides of the monument. Two four-lane highways, Unser Boulevard and Paseo del Norte, bisect the monument in two different places. Regarding the decision to build these roads through the monument, one VIP expressed: "It's a shame... Once they cut through one part, they're just going to let them cut through another." Homes push against the monument border to such a degree that many VIPs refer to as PETR their "backyard." Some VIPs are concerned about a future where the monument is "boxed in" by development and loses its biodiversity and the views that many VIPs value so highly.

To contrast these anxieties, eight of the 15 VIPs listed the proximity of the monument to the city as an invaluable asset that makes PETR unique. One VIP explained, "I don't think any [other cultural sites] are quite so easily accessed adjacent to an urban area... You can go out a door and literally walk into a sacred landscape." Another admired the accessibility of the monument, "[PETR is] available in a way that a lot of protected lands are not. To a whole range of people in terms of their socioeconomic situation. You don't have to travel... You can just get in your car." The focus group discussed how PETR's proximity to local communities provides

an important resource for education: “As people in society are further disconnected from [nonhuman] elements, places like this become an opportunity to engage with those things.”

[insert Figure 2 about here]

Neighborhoods

Many of the neighborhoods around PETR have been in place for longer than the land has had National Monument status and so their inhabitants are sometimes used to different regulations or trails than the ones that are in place today. VIPs and employees both note how this fact has resulted in a small group of neighbors who struggle to respect the rules of the monument: “A lot of neighbors like to say, ‘Well I’ve been living here for 30 years and there was never an official trail back then, so I’m gonna use my trail that I’ve been using.’” VIPs explained that many people feel “entitled” to the land and that many of them “basically think this is an extension of their property.” To find a balance with the neighborhoods, PETR has created several designated trails specifically to address the needs of their inhabitants and reduce the number of social trails.

While this sense of ownership might have its challenges, it also inspires a sense of responsibility. Many of the VIPs interviewed are also neighbors of the monument and report that within their neighborhoods there seems to be a respect and pride for the land. This attitude is thanks in no small part to the efforts of the staff to engage neighborhoods with the monument. One VIP recounted how, “the rangers tell us we’re their stewards, ‘cause we’re right next door” and another agreed that, “I think that if people have kind of a sense that this is theirs, then they take better care of it.” While not every neighbor shares these ideas, VIPs agree that most people seem to be “proud of this and where they live.” The staff similarly noted how: “If you know about the park and its resources... Then you have that positive connection.” Once these connections have been established, they can be powerful tools to help PETR achieve its goals:

A: A lot of these connections... Really [do] a lot of good for us, because [neighbors] can reach out a lot more directly. As private citizens they can do more lobbying than you can as a federal employee.

B: It’s great to have that voice amplified so it’s not just, oh, the park service says this... there’s some other people saying it too now.

A: It reaches people differently when it’s an official statement from a federal agency versus just like, a real person down the street really thinks this important.

Discussion

This project has revealed how the volunteers and staff at PETR hold a deep respect for the nonhuman. PETR provides visitors several of opportunities to learn how to move beyond their own human-centered perception to connect with nonhumans (Kirby 2008; Gambel et al. 2019). Firstly, humans on PETR are constantly reminded about their place in the material world through interactions with nonhumans. Secondly, several nonhumans on PETR guide visitors through these interactions which set the stage for successful future relationships. Thirdly, the growth of neighborhoods immediately bordering the monument makes the facilitation of these relationships increasingly vital. Finally, the VIP program exemplifies how authentic, long-lasting

reconnection between the human and nonhuman can not only be successful in the future, but is already underway.

Petroglyphs, wildlife, the view: Things that make you think

PETR diligently works to provide different opportunities for engagement based on the needs of each individual visitor. The petroglyphs, through their own agency, reveal themselves how and when they want to. Per the monument's policy, PETR staff and volunteers will not interpret these images for visitors, instead insisting that these humans take advantage of the opportunity to consider how they relate to nonhumans that are connective through time and space. With their striking imagery, longevity, and intrigue, the petroglyphs are not just a tool for human communication but are connective entities in their own right. Through experiences with the petroglyphs, humans are compelled to remove themselves from the center of their experience on the monument and instead consider the cultural, historical, political, and spiritual context in which they stand (Braun and Castree 1998).

The viewscape offers a connection to a far-reaching reality, one which has been felt by Puebloans for centuries and that places visitors within the context of hundreds of miles worth of geology, culture, and history. The interviews reveal how the humans on and around PETR want the growing human landscape to work within this context and be mindful of the more-than-human as it develops (Tillman 2015). The view is itself an entity at the monument—something to be protected and an element under threat. Future development of the West Mesa, as guided by the Integrated Development Ordinance—itself an agent on the landscape—will no doubt provide ongoing opportunities to explore the tensions between the needs of humans and those of the more-than-human.

Through connections with wildlife, humans at PETR are constantly held accountable for their place in the material world (Benson 2019). The increasing fragility of the landscape and the threats to these species provide a sense of urgency in the staff and volunteers to communicate these relationships to visitors as quickly and effectively as possible. Without a focus on reconnection, the increasing number and frequency of visitors combined with the proximity of a growing urban center promises to exacerbate existing issues of habitat degradation, pollution, and erosion.

Trails, signs, status: Nonhumans that guide us

At PETR, there are several actors that guide human experiences with the nonhuman including the designated trail system, literature, signage, and the NPS status of the monument. Boca Negra has the most easily accessible petroglyphs and consequently receives the most visitors, affecting the erosion and wildlife of the canyon. Visitors often extend their time in Rinconada and Las Piedras Marcadas Canyons far beyond what the trails require to find and observe as many petroglyphs as possible. While these decisions may seem to be made for human needs, in reality, the nonhumans of PETR are iteratively recreating and co-producing their reality by affecting where visitors go and how long they spend there (Barad 2007; Gambel et al. 2019).

PETR staff are constantly brainstorming and implementing ways to mitigate the effects of visitation and development on the monument while improving the connection between the human and the nonhuman (Norman 2021). To address visitors who are frustrated at not being

able to spot petroglyphs, monument representatives encourage a reconsideration of the relationship with the petroglyphs by employing a Puebloan adage that “the petroglyphs will reveal themselves to you when they want to be seen.” This is intended to help reframe visitor relationships with the petroglyphs not as one of a human being entitled to the use of a commodity but rather as two entities coexisting in the same space (Kirby 2008). PETR focuses on the education of those humans inhabiting nearby developments to better utilize these entities in its care. The impact of this process can be seen exemplified by the different types of trails on the monument. Boca Negra canyon was originally developed in the late 1970s and prioritized the enjoyment of the visitor over the protection of the petroglyphs. This canyon was almost completely paved over with an access road to the base of the volcanic escarpment and paved trails covering lava rock to get visitors within just a few feet of the petroglyphs. Drastic modifications were made to visitor experiences with National Monument designation. Rinconada and Piedras Marcadas Canyons were both developed using NPS standards and focus on ensuring the health of the environment first and the enjoyment of the visitor second. In these canyons, visitors are asked to take responsibility for their time on the monument and consider how their presence impacts the nonhumans around them (Tillman 2015).

Neighborhoods: Competitive allies

The relationship between the monument and the neighborhoods is multifaceted. Their humans take advantage of the open space provided by PETR, which could improve their connection with the monument, but this use runs the risk of harming the resources of the monument if left unchecked. PETR approaches these entities almost as if they were an additional resource to the park, something to benefit PETR and advance the monument’s goal of preservation (Tillman 2015). The monument does regular outreach events to neighborhoods to emphasize how these entities are allies of the monument with a responsibility to recognize the needs of the land that they share with PETR (Tillman 2015).

There exists an ongoing disconnect between the humans in the area and their understanding of the agency and needs of nonhumans (Norman 2021). In 2022, Amazon purchased a large portion of land south of PETR and built a large building, blocking the view of Mount Taylor from the volcanoes. Despite the damage to the viewscape, more developments are expected in the future. This is just one of many examples that highlight the importance of the outreach programs employed by PETR to reframe the neighborhoods as future stewards and allies of PETR (Norman 2021). If PETR can continue to foster these connections, then there is the potential for a future in which the neighborhoods of PETR need no longer be considered exclusively competitors or ever-growing enemies but may rather become increasingly powerful allies with moral and political influence over the values and impacts of other developments around the monument (Braun and Castree 1998; Zimmerer 2000). Developments on the West Mesa are continually forced to consider and adjust themselves to account for PETR’s borders and nonhumans. These entities are bound by the legal restrictions in place to protect the monument and its resources. The competition between PETR and the neighborhoods for space while simultaneously supporting each other’s well-being places these two entities in a unique and ongoing relationship.

VIP Program as more-than-human

With almost 70 members as of Summer 2024, the VIP program is immensely impactful. By creating a united, consistent goal and developing strategies and standards on how to achieve it, the VIP program constitutes a tremendous force that continually remakes the world around it (Barad 2007). The VIP program constitutes a vital intermediary that connects countless other nonhumans at PETR and the monument could not function the way that it does without it. The VIP program is not just arbitrarily a part of the NPS, it fosters deep and complex connections between humans and nonhumans. Volunteers are incapable of removing themselves from the monument or its processes as they are a part of what constitutes its design. Through the program they are actively be-ing a part of PETR (Kirby 2008). The VIP program operates as an agent on the landscape, moving past the individual personalities of its individual human participants. It acts as an embodiment of the NPS's values and goals. The VIP program at PETR provides an example of the potential of post-humanist theories off the page and in the real world. With continued effort from the staff and volunteers and ongoing cooperation with the City of Albuquerque, PETR is poised to provide every visitor and neighbor with the opportunity to one day advance to the same level of connection as the VIPs.

Recommendations

This study offers several insights that provide recommendations to PETR managers to further their goals of community education and engagement. Firstly, the viewscape of the monument, while easily accessible, is significantly underrepresented in the literature available to visitors. An increased effort to communicate the viewscape's value to the public and visitors through an expansion of PETR's current management strategies would benefit PETR for a future where it faces growing threats such as large building projects on the West Mesa. Secondly, the visitor center at PETR has limited space and cannot offer visitors the traditional visitor center displays found at other units. Due to this, visitors only have a few options to learn about PETR before they go to a trailhead. The conversion of the patio into a space that more closely resembles a traditional visitor center would engage more visitors. Despite its comprehensive message, VIPs report that not everyone wants to take 20 minutes to watch the monument's movie. Displays featuring the same information would engage a wider demographic and more effectively inform visitors. Finally, without a dedicated visitor center, the literature visitors take away from the information kiosk are a vital part of how PETR communicates its message. However, the literature lacks a cohesive message and is spread over several pamphlets, meaning that visitors who take different pamphlets each get different pieces of the overall message. One larger brochure featuring all the information would be more accessible and easier to distribute.

These suggestions are only possible because PETR has so successfully developed and utilized strategies that are highly effective at facilitating the relationships between humans and nonhuman. Through their methods, the monument sets the stage for advanced connections between visitors and the more-than-human. Humans are constantly offered opportunities to engage with nonhumans and PETR guides these interactions to be as impactful as possible. The monument's outreach to the growing neighborhoods around it has successfully grown its VIP program to such a degree that it not only benefits PETR but has become an integral part of the monument's function and being. The continued effort of the staff to engage its visitors and neighborhoods with its nonhumans through community outreach and educational opportunities has successfully fostered an environment in which the nonhuman is considered and valued by the humans around the monument.

References

- Anderson, Kay. 2014. "Mind over Matter? On Decentring the Human in Human Geography." *Cultural Geographies* 21 (1): 3–18. <https://doi.org/10.1177/1474474013513409>.
- Anschuetz, Kurt F., T. J. Ferguson, Harris Francis, Klara B. Kelly, and Scheick. 2002. "'That Place People Talk About': The Petroglyph National Monument Ethnographic Landscape Report." Unpublished manuscript on file with the National Park Service Petroglyph National Monument, Albuquerque, New Mexico.
- Barad, Karen Michelle. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Durham: Duke University Press.
- Barua, Maan, and Anindya Sinha. 2019. "Animating the Urban: An Ethological and Geographical Conversation." *Social & Cultural Geography* 20 (8): 1160–80. <https://doi.org/10.1080/14649365.2017.1409908>.
- Bastian, Michelle, ed. 2017. *Participatory Research in More-than-Human Worlds*. Routledge Studies in Human Geography 67. London; New York, NY: Routledge, Taylor & Francis Group.
- Benson, Melinda H. 2019. "New Materialism: An Ontology for the Anthropocene." *Natural Resources Journal* 59.
- Braun, Bruce. 2015. "The 2013 Antipode RGS-IBG Lecture: New Materialisms and Neoliberal Natures." *Antipode* 47 (1): 1–14. <https://doi.org/10.1111/anti.12121>.
- Braun, Bruce, and Noel Castree, eds. 1998. *Remaking Reality: Nature at the Millenium*. London; New York: Routledge.
- Bryman, Alan. 2016. *Social Research Methods*. Fifth edition. Oxford: Oxford University Press.
- Comay, Laura. 2022. "National Park System: Establishing New Units." Congressional Research Report RS20158.
- Coole, Diana, and Samantha Frost, eds. 2010. *New Materialisms: Ontology, Agency, and Politics*. Duke University Press. <https://doi.org/10.2307/j.ctv11cw2wk>.

- Creswell, John W., and J. David Creswell. 2018. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Fifth edition. Los Angeles: SAGE.
- Cronon, William, ed. 1996. *Uncommon Ground: Rethinking the Human Place in Nature*. 1. publ. as pbk. New York, NY: Norton.
- De Landa, Manuel. 2006. *A New Philosophy of Society: Assemblage Theory and Social Complexity*. London; New York: Continuum.
- Escobar, Arturo. 1999. "After Nature: Steps to an Antiessentialist Political Ecology." *Current Anthropology* 40 (1): 1–30. <https://doi.org/10.1086/515799>.
- Force, Joe, and Deborah Forester. 2002. "Public Involvement in National Park Service Land Management Issues." *Social Science Research Review* 3 (1): 1–28.
- Froeschauer, Peggy. 1994. "Cultural Landscape Overview: Petroglyph National Monument, New Mexico." U.S. Department of the Interior.
- Funk, Rex, and Matt Schmader. 2019. "A Blank Spot on the Map: Albuquerque's Open Space Story." City of Albuquerque Parks and Recreation.
- Gamble, Christopher N., Joshua S. Hanan, and Thomas Nail. 2019. "What is New Materialism?" *Angelaki* 24 (6): 111–34. <https://doi.org/10.1080/0969725X.2019.1684704>.
- Gaudry, Adam J. P. 2011. "Insurgent Research." *Wicazo Sa Review* 26 (1): 113–36. <https://doi.org/10.1353/wic.2011.0006>.
- Great Divide Pictures. 2014. "A Beautiful Mystery." *National Park Service* video. 23:22. <https://www.nps.gov/petr/learn/photosmultimedia/multimedia.htm>.
- Gregg, Melissa, and Gregory J. Seigworth. 2010. *The Affect Theory Reader*. Durham, NC: Duke University Press.
- Grusin, Richard A., ed. 2015. *The Nonhuman Turn*. 21st Century Studies. Minneapolis: University of Minnesota Press.
- Haraway, Donna J. 2016. *Manifestly Haraway*. Minneapolis: Univ of Minnesota Press.

- Kirby, Vicki. 2008. "Natural Convers(at)ions: Or, What If Culture Was Really Nature All Along?" In *Material Feminisms*, edited by Stacy Alaimo and Susan J. Hekman. Bloomington: Indiana University Press.
- Krueger, Richard A., and Mary Anne Casey. 20. *Focus Groups: A Practical Guide for Applied Research*. 3. ed., [Repr.]. Thousand Oaks, Calif.: Sage Publ.
- Latour, Bruno. 1993. *We Have Never Been Modern*. Cambridge, Mass: Harvard University Press.
- Latour, Bruno. 2007. *Reassembling the Social: An Introduction to Actor-Network-Theory*. 1st ed. Clarendon Lectures in Management Studies. Oxford: Oxford Univ. Press.
- Lorimer, Jamie. 2012. "Multinatural Geographies for the Anthropocene." *Progress in Human Geography* 36 (5): 593–612. <https://doi.org/10.1177/0309132511435352>.
- National Park Service, City of Albuquerque and, State of New Mexico. 1991. *Petroglyph*. Albuquerque: National Park Service.
- National Park Service. January 30, 2018. "Geology: Designer of the Land." National Park Service. Accessed August 3, 2024. <https://www.nps.gov/petr/planyourvisit/geology.htm>.
- National Park Service. January 31, 2018. "Recent History of Petroglyph National Monument." National Park Service. Accessed August 4, 2024. <https://www.nps.gov/petr/learn/historyculture/recent-history-of-petroglyph.htm>.
- National Park Service. March 20, 2021. "What are Petroglyphs." National Park Service. Accessed August 4, 2024. <https://www.nps.gov/petr/learn/historyculture/what.htm>.
- National Park Service. 2023. "Volcanic Inverted Topography." National Park Service. Accessed August 4, 2024. <https://www.nps.gov/articles/000/volcanic-inverted-topography.htm>.
- New Mexico Museum of Natural History & Science. n.d. "Albuquerque Volcanoes." New Mexico Museum of Natural History & Science. Accessed August 3, 2024. <https://www.nmnaturalhistory.org/volcanoes/albuquerque-basin-volcanic-field>.
- Norman, Jana. 2021. *Posthuman Legal Subjectivity: Reimagining the Human in the Anthropocene*. 1st ed. London: Routledge. <https://doi.org/10.4324/9781003197133>.

- Plumwood, Val. 1993. *Feminism and the Mastery of Nature*. Opening Out. London; New York: Routledge.
- Robbins, Paul. 2012. *Political Ecology: A Critical Introduction*. 2nd ed. Critical Introductions to Geography. Chichester, West Sussex; Malden, MA: J. Wiley & Sons.
- Ruscavage-Barz, Samantha M. 2007. "The Efficacy of State Law in Protecting Native American Sacred Places: A Case Study of the Paseo Del Norte Extension." *Natural Resources Journal* 49.
- Savin-Baden, Maggi, and Claire Howell Major. 2012. *Qualitative Research: The Essential Guide to Theory and Practice*. Milton Park, Abingdon, Oxon; New York: Routledge.
- Schmidt, Jessica. 2013. "The Empirical Falsity of the Human Subject: New Materialism, Climate Change and the Shared Critique of Artifice." *Resilience* 1 (3): 174–92.
<https://doi.org/10.1080/21693293.2013.837241>.
- Swyngedouw, Erik. 1999. "Modernity and Hybridity: Nature, *Regeneracionismo*, and the Production of the Spanish Waterscape, 1890–1930." *Annals of the Association of American Geographers* 89 (3): 443–65. <https://doi.org/10.1111/0004-5608.00157>.
- Tillman, Rachel. 2015. "Toward a New Materialism: Matter as Dynamic."
- U.S. Congress. 1990. *To Establish Petroglyph National Monument and Pecos National Historical Park in the State of New Mexico, and for Other Purposes*. Stat. Vol. 272.
- Walter, Chanteil. 2018. "Petroglyph National Monument Visitor Use Management Plan / Environmental Assessment." National Park Service.
- Williss, Frank. 1985. "*Do Things Right the First Time*": *The National Park Service and the Alaska National Interest Lands Conservation Act of 1980*. U.S. Department of the Interior.
- Wilson & Company. 2008. "Paseo del Norte Extension: Roadway to Albuquerque's Future." Wilson & Company. Accessed August 3, 2024.
https://web.archive.org/web/20150402132835/http://www.wilsonco.com/projects/transportation/paseo_del_norte.

Zimmerer, Karl S. 2000. "The Reworking of Conservation Geographies: Nonequilibrium Landscapes and Nature-Society Hybrids." *Annals of the Association of American Geographers* 90 (2): 356–69. <https://doi.org/10.1111/0004-5608.00199>.

University of New Mexico

UNM Digital Repository

Geography ETDs

Electronic Theses and Dissertations

Fall 10-25-2024

New Materialism and Public Lands: Opportunities for Human and Nonhuman Interactions at Petroglyph National Monument

Madilynn M. Nolen

University of New Mexico

Follow this and additional works at: https://digitalrepository.unm.edu/geog_etds



Part of the [Environmental Sciences Commons](#), and the [Human Geography Commons](#)

Recommended Citation

Nolen, Madilynn M.. "New Materialism and Public Lands: Opportunities for Human and Nonhuman Interactions at Petroglyph National Monument." (2024). https://digitalrepository.unm.edu/geog_etds/82

This Thesis is brought to you for free and open access by the Electronic Theses and Dissertations at UNM Digital Repository. It has been accepted for inclusion in Geography ETDs by an authorized administrator of UNM Digital Repository. For more information, please contact disc@unm.edu.