THESIS

LEARNING FROM THE LIVED EXPERIENCES OF LAKOTA, NAVAJO, CHICANA, LATINA, AND HISPANIC WOMEN RANCHERS ACROSS TURTLE ISLAND THROUGH PLÁTICAS

Submitted by

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ABSTRACT

LEARNING FROM THE LIVED EXPERIENCES OF LAKOTA, NAVAJO, CHICANA, LATINA, AND HISPANIC WOMEN RANCHERS ACROSS TURTLE ISLAND THROUGH PLÁTICAS

Rangeland social science research has historically relied on quantitative, survey-based methods that obscure the socio-political and historical realities that shape rancher decision-making, including how conservation innovations are evaluated, adapted, or resisted. These approaches, often seemingly apolitical, have historically and overwhelmingly focused on white, Euro-American male ranchers, and to a lesser extent, white, Euro-American women ranchers, while almost entirely excluding the experiences, perspectives, and contributions of Indigenous, Black, and ranchers of color, especially women.

By lacking intersectional feminist analysis, such research has reinforced harmful narratives that invisibilize systemic oppression and erase settler-colonial history and its ongoing legacy. The narratives promoted by existing research, mask the attempted intergenerational dispossession of ancestral homelands, cultural practices, and lifeways, along with the herstorical leadership, contributions and knowledge systems of Indigenous, Black and other women of color ranching communities. In doing so, this body of work has upheld settler-colonial and capitalist frameworks of land and livestock management, narrowing the field of rangeland science and limiting the possibilities for more just and inclusive futures.

This thesis provides a timely intervention, grounded in Chicana feminist and Indigenous feminist theory as methodology and praxis. I conducted ten semi-structured life herstory pláticas

with Lakota, Navajo, Latina, Chicana, and Hispana women ranchers across the western bioregion of Turtle Island. Their stories illuminate ranching as a feminist-liberatory practice rooted in responsibility to ancestors, community, land, animals, and future generations. Their primary goals and motivations to continue ranching included strong ties to their ancestral homelands, responsibility for caring for the land and all her kin as Mother Earth cares for them, and a need to pass their teachings and way of life on to future generations. The women identified challenges such as prolonged drought, climate change, financial strains intensified by Covid-19, volatile livestock markets, and barriers to processing their own meat and keeping it in their communities. Successes included producing healthy animals and high-quality meat on healthy rangelands, keeping land in the family and serving as role models within their communities.

These findings reframe ranching as a cultural, ecological, and political practice rather than solely an economic activity. The development and adoption of innovations serve to learn from following a community-led, ground-up model that begins with the standpoints of ranchers, their lived experiences, goals, challenges, successes and adaptive management strategies, so that innovations are co-developed to be practical and relevant to their specific needs. A deeper understanding and centering of the lived experiences of Indigenous rancher, Black rancher, and ranchers of color, especially women ranchers of those communities, who remain largely excluded from this field can inform more equitable and effective policy, outreach, and conservation tools. This thesis affirms the importance of intersectional, Indigenous, and Chicana feminist analysis, representation, and relational accountability in rangeland science. It also calls for systemic transformation so that the field more accurately reflects Indigenous women ranchers as original and longstanding stewards of these lands, and how they, along with Black women ranchers and other women of color ranchers, endure as innovators, leaders, and caretakers of

land-based presents and futures, despite being overwhelmingly ignored or excluded in rangeland science research.

Furthermore, this work fills a critical gap in representation important to younger generations in this field to get to see themselves, their communities' values, their herstories, their leadership and contributions fully reflected across journals, panels, conference presentations, classrooms, and other academic and professional spaces in this field.

ACKNOWLEDGEMENTS

This thesis was shaped by deeply meaningful relationships, stories, and care shared across the Native lands, Nations, and communities that made this work possible. I honor and hold deep gratitude for the Lakota, Navajo and Isleta Pueblo Nations, whose ongoing stewardship of their ancestral homelands, relations, and lifeways continues since time immemorial and grounds this research. I also honor the Mexican, Chicana, Latiné, Hispanic, and Filipina ranching families connected to this work, who continue to care for their lands, peoples and ways of life. Across all of these Nations and communities, generations of stewardship, intergenerational care, cultural continuity, and everyday acts of resistance and resilience have sustained the lands and lifeways that ground this work. I further honor the Ute, Cheyenne, and Arapaho Nations, whose ancestral homelands Colorado State University occupies, and whose ongoing care for these lands and relations calls all of us who live, learn and work here to do so with awareness, responsibility, and solidarity.

I offer my deepest thanks to the twenty-three ranchers and farmers who shared their gifts of story, wisdom, and lived experiences through our pláticas. Your generosity, honesty, and teachings shaped every part of this research. Each of you offered insights that continue to guide an understanding of the caretaking, responsibility, and commitment needed to uphold the care for Native lands, our communities, and to create the liberatory futures we and those coming after us deserve. I will forever cherish the stories we shared and the healing that came through the process of learning from and being in community with each of you. I hold with deep respect the responsibility of centering your voices and am filled with gratitude for the opportunity to

contribute with you toward healing, representation, and visibility for our communities in this way of life and field of rangeland science.

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To my beautiful family, I would not be here without you. To my sweet momma, thank you for holding our family always with such generosity and love, and for encouraging me through every step of this journey. Thank you endlessly for being my grounding force and biggest supporter. To mi papá, I am exactly like you in all the best ways, and for that I am incredibly grateful. You have been there for all of us through everything, even while facing your own health challenges, still showing up for us with such strength, humor, and unwavering love. It was you and my momma who first taught me a deep love for the land, for our cultural foods, and for the spirit of who we are as a people. Your belief in me and your mantra of being inexorably persistent, stays with me every day. To my older brother, Adan, thank you for being

someone I have always looked up to and for always being there for me when it mattered most. To my little brother, my Day 1, Joaquin, thank you for always being you and for seeing and understanding me so clearly. To my little sister, Mireya, thank you for being the sweetest sister I could ever ask for, and for always encouraging me with a deep wisdom far beyond your years. And to my grandma, Jeanette, who has been there for us since we were babies and still is, thank you for your warmth, humor, and the way you always make us feel so loved. We treasure every moment with you.

To my dear hermanas, Beatriz Esparza, Miriam Mata, Tiera Morrison and Erin Thomas, thank you for walking with me with so much care, strength, and joy across every season of this journey. For the long talks that heal, the endless laughter, and the kind of care that gotten me through every high and low over all these years. Beatriz your humor, brilliance and love have carried me through this program. You bring ease when things feel heavy, and your hermanaship has grounded me in joy, strength, and truth. Miriam, your fierce, yet gentle strength, and unwavering generosity have taught me what it means to show up for our communities and ourselves with compassion and patience. Your hermanaship reflects balance and a love that moves mountains and steadies everyone around you. Tiera, your radiant spirit, and the light we have shared across distance are such gifts. You bring joy, calm, and laughter into my life, and your hermanaship continues to fill me with peace and gratitude. Erin, your deep care, leadership, vision, and the way you live your purpose and build community, continue to show me what grounded power looks like. Your hermanaship reminds me that we can lead and create with courage, clarity, and heart.

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stood beside me through every “this is the semester I am going to graduate!” and never doubted me. Thank you for believing in me, cheering me on and helping me to laugh, dance and sing through it all. I am endlessly grateful for you and the life we’ve built together and am so excited for all that’s ahead of us.

Lastly, I honor my Indigenous Mexicano, Italian and Scottish ancestors, whose resilience, love, and wisdom made this path possible. Your stories and sacrifices live in every page of this work. This thesis is offered in service to you and to the comunidades who continue to organize, protect, and advocate for the holistic health, rights and liberation of Indigenous Nations, peoples of the global majority, our more-than-human-kin, and Mother Earth.

POSITIONALITY STATEMENT

As a Chicana feminist researcher, I see positionality as essential to this work. Being transparent about who I am, what I believe, what privileges I hold, and what has shaped me is part of my responsibility. My relationship with rangeland science is shaped by my herstory, my community and my cultural upbringing. A deep love for and being of the land has always been part of my ancestors' lives and continues to ground my communities today and into the future.

I position myself as a Chicana feminist scholar grounded in the experiences and knowledges of communities historically excluded from being centered in rangeland science literature, policy, and management decisions. In feminist theory, standpoints refer to the perspectives that arise from people's lived experiences, social locations, and herstories. Standpoint theory asserts that knowledge is shaped by these positions and that marginalized communities often hold distinct and critical insights into power, inequality and social systems (Harding, 1991; Hill Collins, 2022). My worldview is shaped by the collective herstories, cultural teachings, and connections of the communities I come from that guide how I live in relationship with the land, and the understanding that we ARE the land. This grounding gives me an oppositional consciousness, an empowering awareness that arises from experiences of oppression when people recognize their shared struggles and act together to challenge and transform systems of domination (Sandoval, 2000). I also write as a Neplantera, which involves living in the in-between, in the borderlands, navigating multiple worlds and cultures while creating new possibilities for myself and with my community (Anzaldúa, 2009). My racialized, politicized, gendered, and classed lived experience shapes my situated knowledge (Haraway,

1988). Situated knowledge recognizes that all of our understandings arise from our social location and cannot be separated from who we are and where we stand in the world.

My standpoint also reflects my lived identity. I am a cisgender, heterosexual, currently able-bodied, brown-skinned woman with a strong Chicana feminist consciousness and responsibility. Mi nombre es Ariana. Soy Chicana, soy feminista y no me disculpo. I come from dos mundos; mi mamá's y mi papá's.

On mi mamá's side, she grew up in a working-class Italian-Scottish-Mexicano family of six. She was very close with her grandfather, a first-generation Mexicano, and through that relationship, his teachings, and later her experiences in college, she came to identify proudly as Chicana. As a first-generation student at Colorado State University, she was deeply involved in el Movimiento Estudiantil Chicana/o de Aztlán (MEChA), organizing for migrant farmworker rights and the Chicano movement. She went on to dedicate her life to immigrant justice, serving for more than 25 years as an Immigration Lawyer and Director of Immigration Services at Catholic Charities in Denver.

On mi papá's side, he grew up in a Mexicano, hardworking migrant farm-working family of 14. From age six through until his mid-20s, he worked alongside his family in the fields, contributing to their livelihood while pursuing his education. He was the first in his family to leave their home in Carrizo Springs, Tejas, to attend college as a first-generation student. He later became the first in his family to leave his home state to attend law school at the University of Denver. Along the way, he overcame difficult economic and cultural barriers. After working as an attorney and law partner, he opened his own firm, advocating for migrant and low-wage workers for over 27 years until he retired. He dedicated his life to advocating for our people, including migrant farmworkers, sheep herders, factory workers, and construction workers who

were injured on the job or denied fair treatment and rightful compensation by their employers. In the 1990s, he took one of his client's cases, initially about $500 in unpaid wages, all the way to the Colorado Court of Appeals, where the case ended without appeal. He spent over $20,000 of his own money and countless hours to fight the case and won. That ruling established case law ensuring that every worker in Colorado, regardless of immigration status, had the right to receive temporary disability benefits, which until then were denied to undocumented workers. It has since been used as precedent across the country.

Through their sacrifices and resilience, my parents gave my siblings and I stability and a strong sense of pride in who we are and where we come from. They taught us to carry a deep ethic of care for our people, our community and the responsibility to fight for what is right in collective solidarity with all who are due just that. We grew up middle-class, with greater stability and opportunities, that we are deeply grateful for and mindful of that privilege.

Growing up in a suburb just north of Denver, in a cement landscape, I found I was most myself and most happy outside in nature, be it in our backyard, at the park, or by the river, especially with family and friends. This connection to the land I have had since a very young age led me to graduate with a Bachelor of Science degree in Rangeland Ecology and Management from Colorado State University (CSU) in 2014. Over the next five years, I worked in rangeland science and management across the western United States, including positions with Chicago Botanic Gardens in partnership with the Bureau of Land Management, University of Arizona Cooperative Extension, and the United States Department of Agriculture (USDA) Agricultural Research Service, where I helped manage and care for 1,200 yearling steers across a 15,000 acre agricultural research ranch.

In 2019, I returned to CSU to pursue a Master of Science in Rangeland Ecosystem Science. When my graduate research assistantship ended in 2021, I continued my studies while navigating burnout and the COVID-19 pandemic. I later took on full-time work to sustain myself, first as a Small Acreage Management Extension Specialist with CSU Extension-Boulder County, and currently as a Program and Operations Officer with First Nations Development Institute (FNDI). Working at FNDI has been a reprieve from the racism and harm I experienced as a brown woman in this field of rangeland ecology. It is one of the leading Native-led nonprofits in the country, supporting Indigenous land stewardship, Indigenous food sovereignty and cultural continuity.

Balancing full-time work and graduate study has been challenging, but this reality reflects the experience of many students of color navigating higher education and financial strain. In my graduate research, I have been grateful to work con mi gente, with Indigenous, Chicane, Latine and Hispanic ranching communities across Turtle Island, to bring our voices, lived experiences, knowledges, and herstorical, and ongoing leadership and contributions to the forefront of rangeland science, where they have long been erased, or ignored. My work affirms that we do belong in agriculture, in academia, and rangeland landscapes, as Indigenous peoples, Black communities and communities of color who have always stewarded these lands despite erasure and dispossession.

I honor my lived experiences, the teachings passed down through my family, and the Chicana and Indigenous feminist frameworks that ground my research methodology and praxis. I remain deeply committed to practicing and sharing ways of healing, thriving and taking action con nuestras comunidades, who continue to fight for the holistic health, rights and liberation of our peoples, our more-than-human-kin, and Mother Earth in varied and transformative ways.

DEDICATION

I dedicate this thesis to my family, my partner, and mis hermanas, whose teachings, love, support, laughter and unwavering belief in me have sustained and carried me to this moment. I further dedicate this thesis to the ranchers and farmers who are incredible community builders and land stewards, who shared their deeply important experiences, perspectives, and wisdom in our pláticas, helping to center our peoples' leadership in this work and way of life, and to my advisor and committee members, and all who supported this research. Thank you <3 <3 <3

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Chokecherry Jam.
My Favorite!
That maroon-ish red
I associate
with that part of the world

Red.
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Chile. Chokecherries. Blood.
Harvesting animals
Birthing animals
Breeding animals

My Childhood?
What's the word…
Brutal, more violent.

You knew to not get in the way
The way of the tree
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The way of the stack of hay
if it started
to move

You knew how to Jump Out of the way
Snakes
Hammers
Saws and Nails
Barbwire, barbwire to cut you

There were adults around
But common sense had to kick in.

This poem is a poetic analysis created from a plática I shared with Dr. Shannon Archibeque-Engle during an early qualitative research course project. It draws from her reflections on growing up with her family and on her family's ranch and is included here with her permission.

1. Research Purpose and Context

To date, United States (U.S.) rangeland social science research on adoption of innovations has largely relied on quantitative, survey-based methods that fail to fully account for

the socio-political and historical contexts shaping rancher decision-making. Furthermore, it has overwhelmingly focused on white, Euro-American male ranchers, and to a lesser extent white, Euro-American women ranchers, while largely excluding the experiences, knowledges and perspectives of Indigenous ranchers, Black ranchers, and ranchers of color, especially women of those communities (Bruno et al., 2020). This exclusion reproduces a narrow view of who belongs in rangeland science, and reinforces harmful dominant narratives that erase systemic oppression, intergenerational dispossession, and the lived experiences, leadership, contributions and diverse knowledge systems of culturally diverse ranching communities.

This thesis addresses these limitations by centering the lived experiences of Indigenous women ranchers and women of color ranchers across the western bioregion of Turtle Island[1]. It explores primary goals and motivations for continuing to ranch, the challenges they face, the successes they are most proud of, and their initial reflections and recommendations for improving the LandPKS mobile app, a conservation innovation tool.

More contextualized, critical, multicultural, and Indigenous feminist qualitative research is needed in rangeland social science to provide rich understandings of how classed, politicized, racialized, and gendered lived experiences, shape ranchers' decision-making, including their perspectives on conservation innovations. This study was initially conducted within the focus of a USDA Natural Resources Conservation Service (NRCS) Conservation Innovation Grant supporting the development of the Land Potential Knowledge System (LandPKS) mobile app. The LandPKS mobile app is a free decision-support tool that assists farmers, ranchers, and land stewards in identifying soils, monitoring vegetation, forage utilization and soil health, and

[1] Turtle Island is an Indigenous name and concept for what is also referred to as North America, reflecting creation stories and Indigenous worldviews that center land, kinship, and responsibility, pre-dating and resisting settler-colonial borders and naming practices.

tracking land stewardship practices over time by integrating first-hand field observations with climate and soil data. Though this is where the study began, its scope evolved far beyond questions of innovation adoption as detailed below.

By bringing an intersectional, Chicana Feminist and Indigenous Feminist framework to rangeland social science, this study contributes to a reorientation of the field towards upholding justice, Indigenous sovereignty, and relational accountability[2].

The following objectives and research questions serve to address these aims:

Objective 1) Explore and document the lived experiences, knowledges and perspectives of Indigenous, and women of color ranchers (specifically, Lakota, Navajo, Latina, Chicana and Hispana) in the western United States, with attention to the historical, social and political contexts shaping their lives.

Objective 2) Investigate how these intersecting realities influence ranchers' operation goals and motivations, challenges, successes and their likelihood to adopt new rangeland monitoring and decision-support technologies like LandPKS.

Research questions:

1) What are the lived experiences of Indigenous women ranchers and women ranchers of color?

2) How do the historical, social and political realities shape their experiences in ranching and their access to resources, markets and institutions?

[2] Relational Accountability refers to a principle in Indigenous and decolonial research emphasizing responsibility, reciprocity, and respect in all relationships; with people, communities, and the land. It recognizes that ethical research depends on maintaining right relations (Wilson, 2020).

3) What challenges and/or barriers do Indigenous and women of color ranchers face, and what strategies do they employ to resist and overcome them?

4) Who do Indigenous and women of color ranchers rely on for support, mentorship and community in their work?

5) What primary goals and motivations guide their ranching operations and ranching practices?

6) What challenges do they face as ranchers?

7) What successes are they most proud of as ranchers?

8) What role do conservation tools and technologies, such as LandPKS play in their operations, and how do they believe such tools could be adapted to better reflect their interests, values and needs?

This thesis uses several concepts from Indigenous, feminist, and decolonial scholarship. A glossary of key terms is included at the end of this document for clarity.

2. Theoretical Frameworks

This thesis works at the intersection of two very different theoretical traditions, positivist/post-positivist social theories on the adoption and diffusion of innovations, and critical and constructivist social theories of Chicana feminism, intersectionality, and Indigenous feminism. This required navigating the challenge and tensions of reconciling two divergent traditions, with the aim of contributing a fuller account of the socio-political and historical complexities that shape decision-making and adoption of innovations by ranchers of color, especially women.

2.1 Diffusion of Innovations Theory

Diffusion is the process of something spreading throughout a population or social system. Rogers defines diffusion of innovations as "the process in which an innovation is communicated through certain channels over time among members of a social system" (2003, p. 24). This theory of diffusion of innovations was developed to understand how innovations spread, why they spread, and at what rate they spread throughout a social system. Rogers (2003) describes four primary elements of the diffusion of innovations process: the innovation, communication channels, time, and the social system. Much of the previously reviewed literature on adoption of conservation innovations and rangeland best practices is framed by this theory, which theorizes that adoption can be predicted by characteristics of the individual adopter, and the innovation (its compatibility with the existing operation, testability, complexity and outcomes) (Baumgart-Getz et al., 2012; Lubell et al., 2014; Pannell et al., 2006; Rogers, 2003). The theory further hypothesizes a process through which adoption typically occurs, including initial awareness, growing interest in and information seeking about innovation, the decision to adopt (or not), implementation of the innovation, and continuation or lapse in using the innovation (Rogers 2003).

Rogers' diffusion of innovation theory remains highly applicable and in wide use across disciplines such as agriculture, public health, education, anthropology, organizational development, and information technology. Though this theory and diffusion research in general has contributed to a better understanding of human behavior change, it is subject to some criticism and opportunities for improvement. The pro-innovation bias, individual-blame bias, recall problem, and the issue of equality are described by Rogers himself as the four primary critiques of diffusion research (Rogers, 2003).

Starting in the early 1970s, as diffusion research began expanding internationally, there was criticism surrounding its pro-innovation bias (Rogers, 2003). The pro-innovation bias of diffusion research assumes that an innovation, in its very existence, is positive and that it should be adopted—not reinvented or rejected—by all individuals in a social system as quickly as possible (Rogers, 2003). However, a number of highly promoted innovations resulted in undesirable social, economic and environmental consequences. For example, beginning in the 1950s, the USDA and Cooperative Extension offices promoted seeding of non-native, invasive grasses in the Southwestern US for forage production and restoration (Anderson et al., 1953) resulting in ecological devastation (Flanders et al., 2006; F. S. Smith, 2010). Species like Lehmann's lovegrass spread rapidly and converted millions of acres of biodiverse native ecosystems into non-native grass monocultures (Bock et al., 2007).

Diffusion research also tends to uphold, support, and endorse the views and/or position of innovation promoters and change agents rather than those of the potential adopters of that innovation. In this same way, diffusion research tends to hold individuals responsible for their problems, rather than the system in what is known as individual-blame bias (Rogers, 2003). For example, the theory positions late adopters and laggards pejoratively and blames them for not adopting an innovation fast enough if at all. Late or non-adopters are viewed as traditional, resistant, and irrational by change agents, rather than as rational for not choosing to adopt an innovation that is not within their best interest or means (Rogers, 2003).

Another criticism of diffusion research is its recall problem; the difficulty in obtaining accurate data from individuals about when they adopted an innovation, what caused their decision to adopt the innovation, and so on (Rogers, 2003). The issue of equality in which diffusion researchers have neglected to address the consequences of innovation is also of primary

concern (Rogers, 2003). For example, it has been shown that oftentimes, the diffusion of innovations can result in further socioeconomic inequality within any social system, especially in developing nations (Rogers, 2003). Additionally, diffusion of innovations theory centers on the idea that adoption of innovation is simply an act of choice. However, adoption of an innovation does not happen in a vacuum, it is not just a choice, often there are resource or social constraints that limit an individual's ability to adopt an innovation even if they wanted to. In this way, adoption is a process influenced by various, interdependent historical, social, economic and political forces.

A few other criticisms of Rogers' diffusion of innovation theory can be found within the review literature of this theory and research. One is that while Rogers' diffusion of innovation theory accounts thoroughly for individuals' adoption of innovations, it falls short in its application to organizations (Lundblad, 2023). Leeuwis and Aarts (2011) contend that Rogers' theory is a 'linear model of innovation' that upholds the inaccurate notion that scientists develop innovations, intermediaries disseminate the innovation and users then put the innovation into practice. This linear model does not account for the fact that many innovations developed solely by scientists are "often not adopted, and that successful innovations were usually based on an integration of (technological and other) ideas and insights from not only scientists, but also of users, intermediaries and other social agents" (Leeuwis & Aarts, 2011, pg. 27).

Moreover, adoption and diffusion theory arose from a largely neoliberal, capitalist, top-down approach to technology promotion, which resulted in the development of many innovations by scientists, engineers, Extension programs that were not relevant or practical for their intended audiences and therefore not well-adopted (Pannell & Vanclay, 2011). The development and adoption of innovations serve to learn from following a community-led,

ground-up model that begins with the standpoints of ranchers, their lived experiences, goals, challenges, successes and adaptive management strategies, so that innovations are co-developed to be practical and relevant to their specific needs (Chambers, 1999; Chambers & Thrupp, 1994). Chambers (1994) proposed such an approach in their "farmer first" innovation model, as did Pannell and Vanclay (2011). I further extend this work by proposing that ground-up models must be based in an intersectional feminist approach, rooted in respectful, non-hierarchical collaboration, and a valuing of diverse ways of knowing, drawing on Haraway's concept of situated knowledges (1988).

These limitations also reveal a deeper issue within dominant rangeland science; epistemic injustice. Epistemic injustice occurs when certain ways of knowing, speaking and relating are dismissed or excluded from what counts as legitimate knowledge (Fricker, 2007). In this field, the expertise of Indigenous ranchers, Black ranchers, and other ranchers of color, especially women, has long been excluded, undervalued or ignored in research, policy, and management decisions. Acknowledging this injustice makes clear the need for theoretical and methodological approaches that honor multiple ways of knowing, value community-based expertise, and challenge the hierarchies embedded in traditional research frameworks. A methodology grounded in critical qualitative research methods promotes a richer understanding of socio-political and historical factors that shape rancher decision-making processes, including adoption of range management innovations.

2.2 Chicana Feminist Theory

I specifically work from a Chicana feminist framework for yo soy Chicana, and I cannot separate myself from this lived reality. My very existence and movement through this world are

socio-political acts, as my race, culture, gender, class and the herstory[3] of my ancestors directly shape not only how I see the world, but how the world sees me. Chicana feminist theory and practice was born out of the need to stand up and carve a place for women in the borderlands of the machista (sexist) dominant culture of the Chicano social movements of the 1960s and the larger white feminist movements of the time (Anzaldúa, 2025; Blackwell, 2016; Garcia, 2014; Moraga & Anzaldúa, 1981).

This borderland, this in-between of Mexican and American realities, Nepantla consciousness, and lived experiences is reclaimed by Gloria Anzaldúa as both geographical and metaphoric. Nepantla comes from a Nahuatl word meaning "in-between" and is used by Anzaldúa to describe "painful, yet also potentially transformational spaces where opposites converge, conflict" and shift into new forms (Anzaldúa, 2009). It is a consciousness of living in the borderlands, navigating multiple worlds, identities, and cultural realities at once. Chicana feminist theory therefore centers lived experience, intersectionality, land-based identity, and the spiritual-political consciousness of Nepantla. This theory and form of feminist epistemology seeks to deconstruct and challenge settler-colonial paradigms, which give rise to and structure interlocking systems of oppression, including anti-Black and anti-Indigenous racism, white supremacy, sexism, classism, racial capitalism and cisheteropatriarchy. These systems are interdependent, not separate; they work together to maintain inequitable power relations and to shape whose voices, experiences, knowledge, contributions, needs, and futures are valued or erased within society and societal institutions.

Furthermore, Chicana feminist theory examines how these systems intersect across perceptions of race, ethnicity, gender, class, socio-economic and educational status. It also

[3] Herstory/herstorical is used here as a deliberate feminist re-centering of women's lived experiences and contributions, in contrast to male-centered histories.

recognizes how connections to spirituality and Indigeneity shape the lived experiences and embodied realities of those in marginalized spaces. Though often dismissed within the dominant U.S. settler-colonial society, Chicana feminist theory affirms them as valuable sources of knowledge, resistance and transformation.

2.3 Indigenous Feminist Theory

Indigenous feminist theory centers Indigenous sovereignty, relationality, resistance, and the continuance of Indigenous lifeways and ways of being despite the attempts of settler-colonial erasure (Arvin et al., 2013; Liboiron, 2021; Simpson, 2017; Tuck & Yang, 2012). It challenges settler-colonial epistemologies by grounding knowledge in land, storytelling, ceremony, kinship, intergenerational care and responsibility (Kovach, 2021; Smith, 2021; Wilson, 2020). In this thesis, Indigenous feminist theory enables a critique of settler-colonial rangeland science.

I also engage Gerald Vizenor's concept of survivance alongside Indigenous feminist theory. Survivance means more than just surviving. It is an active presence that combines survival and resistance, pushing back against settler-colonial stories that falsely portray Indigenous peoples as victims or as disappearing (Vizenor, 2008). Kyle Whyte (2018) expands this idea in environmental justice, affirming how survivance is tied to Indigenous peoples' ongoing responsibilities to land, community, and future generations. In my thesis, survivance complements Indigenous feminist theory through understanding how Indigenous, Chicana, Latina, and Hispana women ranchers continue their ancestral responsibilities through land stewardship, community care, ranching, Indigenous food-systems sovereignty, and rematriation, while also adapting to today's challenges and the ongoing legacies of settler-colonialism.

2.4 Intersectional Feminist Theory

Chicana feminist theory, Indigenous feminist theory, and survivance ground this study in diverse ways of knowing, resistance, and continuity. Intersectional theory builds on these by revealing how socially constructed systems of race, gender, class and other forms of oppression overlap to shape women ranchers' lives.

In 1989 scholar, lawyer and activist Dr. Kimberlé Crenshaw coined the term intersectionality to explain the oppression of Black women and show how the social constructs and systems of race, ethnicity, class, gender, sexuality, nationality, and ability are interconnected and interdependent in shaping lived experiences (Crenshaw, 1997). Long before the term intersectionality was named, many women scholars and activists such as Sojourner Truth, Patricia Hill Collins, Bell Hooks, and Audre Lorde theorized and acted from this understanding (Hill Collins, 2022; hooks, 1981; Lorde, 2012; Truth, 1851).

Lynn Weber (1998), in her essay, 'A Conceptual Framework for Understanding Race, Class, Gender and Sexuality,' explains that these social characteristics and systems of oppression are not only socially constructed, contextual, and expressed simultaneously, but are also shaped by power and privilege in ways that are geographically and historically specific. They function at both the macro level of structures and institutions and the micro level of everyday, individual experience. Recognizing the social construction of inequality makes it possible to critique and challenge what otherwise appears to be an impervious system of domination. This framework also cautions against reducing these dynamics to simple variables in quantitative models (Hess-Biber & Yaiser, 2023), as has often been done in rangeland social science research on adoption of innovations.

Moreover, this lens clarifies how the politics of race, ethnicity, gender, class and sexuality are experienced at multiple scales and how marginalized groups resist oppression both structurally and in their everyday lives (Weber, 1998). Together, these theoretical frameworks guided how I designed and carried out my research methods, shaping the questions I asked, the way I conducted pláticas, and how I analyzed and interpreted the women ranchers' stories.

3. Methods and Methodology

A feminist methodology begins with relationships and is rooted in collaboration, reciprocity, and respect between researchers and participants as co-creators of knowledge (Collins, 2022; Hesse-Biber, 2013; Reinharz & Davidman, 1992). In this thesis, I use the term participant co-researchers to describe the women who shared their stories to inform this study. This terminology, grounded in feminist theory, challenges extractive research practices and affirms participants' expertise and authority in knowledge production (David-Chavez & Gavin, 2018; Hesse-Biber, 2013).

A feminist methodology also requires looking inward, recognizing that research is never neutral or objective. My herstory, lived experiences, cultural background and social location shape the values I bring to this work, the questions I ask and do not ask, the ways I listen, and the interpretations I make. This reflexivity is central to feminist research, which understands knowledge as situated, relational, and embodied (Haraway, 1988).

Feminist methodology also centers the lives of those historically marginalized and works to decenter dominant perspectives. Feminist researchers understand that the world is complex and so our task is to unpack its social, political, historical, and cultural contexts that shape lived experiences and to reveal the broader systems of power and oppression that sustain inequity. It

aims not only to analyze but to transform, challenging oppression and co-creating more just and liberated futures.

3.1 Pláticas

Drawing from principles of Chicana and Indigenous feminist methodology, I collaborated with my initial advisor, María Fernández-Giménez, to develop an in-depth, semi-structured plática protocol designed to elicit narratives of lived experiences in participants' own words. Plática(s), meaning "conversation(s)" in Spanish, is used here as a decolonial, Chicana feminist research approach grounded in story-sharing, reciprocity, and relational accountability (Delgado Bernal, 2020; Fierros & Delgado Bernal, 2016). Rooted in everyday dialogue and cultural traditions of knowledge-sharing across Chicana, Latina and Indigenous communities, pláticas foster trust and collective reflection, creating conditions for cultural and experiential knowledge to emerge in ways that structured surveys, or formal interviews cannot (Delgado Bernal, 2020; Fierros & Delgado Bernal, 2016). As a feminist method, pláticas honor participants as co-constructors of knowledge, connect everyday life to the research process, and hold space for healing and vulnerability (Delgado Bernal, 2020; Morales et al., 2023). They engage the "bodymindspirit" (Lara, 2005, pg. 11) of both researcher and participant, resisting white supremacist and colonial research traditions that demand emotional detachment and objectivity (Delgado Bernal et al., 2023).

By centering pláticas, this research resists extractive models of social science and affirms story-based, relational methodologies as essential to building more just and sustainable rangeland futures. Guided by Chicana and Indigenous feminist frameworks, I practiced deep listening, attending to what was said and left unsaid, asking for clarification when needed, and paying close attention to differences within and across the ranching communities of the participant co-

researchers. Through this praxis, pláticas became not just a data collection tool, but a shared space of relationship, reflection, and collective knowledge-making, embodying the active application of theory through lived practice (Freire, 2000).

This methodological approach also directly addresses the epistemic injustice within U.S.-based rangeland science, where dominant Euro-American scientific paradigms have historically defined what counts as valid knowledge (Harding, 1991; Kovach, 2021; Smith, 2021) while excluding the lived, land-based expertise of Indigenous ranchers, Black ranchers and other ranchers of color, especially the women ranchers of those communities. By centering their voices, relationships, and experiences, this study challenges those hierarchies. In doing so, the pláticas serve as both a relational and corrective practice, restoring recognition and value to knowledges long silenced in rangeland research, policy, and management.

I carried out research con mi gente (with my people) not on mi gente, embedding reciprocity and accountability at every step. This included affirming participant co-researchers' expertise, being open and vulnerable by sharing my own experiences during the pláticas, and valuing each other as whole people, not just as sources of information.

Although this study was supported by a USDA-NRCS Conservation Innovation Grant, the project budget did not include honorariums or stipends for the participant co-researchers who shared their time and knowledge. Everyone's time and expertise should be honored and compensated though. While I do not have the personal means to provide formal payments for the participant co-researchers, I remain committed to honoring their time and generosity in meaningful ways. As part of my methods, I have prepared thank-you packages that include a personal thank-you card and a pouch of native grass, forb, and shrub seeds. My father and I saved these seeds from our home native plant garden, now in its sixth season after being

converted from a Kentucky bluegrass lawn to native grasses, forbs, and shrubs. These small gestures reflect my commitment to reciprocity and gratitude, recognizing that each plática was a gift of time, trust, knowledge, and healing that made this work possible.

This plática approach grounded the study in transparency, accountability, and reflexivity. Trust and reciprocity were not outcomes of data collection, but integral to how knowledge was created and shared. Further, my Chicana positionality required continuous reflection on power and representation, shaping how I listened, interpreted and built relationships before, during and after the pláticas.

3.2 Study Sites and Participant Co-researchers

My initial study draws from a total of 23 pláticas with Indigenous ranchers and ranchers of color across the Cheyenne River Sioux Reservation, Navajo Nation, and regions of New Mexico, Colorado, California and Montana. Participant co-researchers included 14 women (LERw1-14)[4] and 9 men (LERm1-9) who self-identified through their own Tribal and cultural affiliations, including Lakota, Navajo, Isleta Pueblo, Mexican, Chicana, Hispanic, Latina/o, and Filipina. Participants' self-identified Tribal and cultural affiliations are presented exactly as they shared them within our pláticas to honor self-representation and resist externally imposed racial categories. Throughout this thesis, I use the term Latiné when referring to broader Latin American and diasporic communities, while also using the exact terms participants chose for themselves to honor their self-identification and cultural specificity.

While the participants represent diverse cultural and regional backgrounds, it is essential to recognize the distinct historical and political relationships that shape how they relate to land

[4] To protect confidentiality, each participant co-researcher is referenced using an anonymous identifier (e.g., LERw1), which stands for Lived Experiences in Ranching - woman or man participant followed by a plática number.

and ranching today. This study includes both Indigenous (Lakota, Navajo, and Isleta Pueblo) and non-Indigenous or, in some cases Indigenous-descendant (Mexican, Chicana, Latina/o, Hispanic, and Filipina) ranchers, whose relationships to land differ in origin, continuity, and meaning.

For the Indigenous ranchers, their stewardship is grounded in ancestral belonging since time immemorial, Indigenous sovereignty, and Nation-to-Nation and treaty relationships that predate colonization and persist despite ongoing legacies of settler colonialism (Gifford & Brody, 2023). These realities are distinct from racialized categorizations of "people of color," as they affirm the inherent political status of Tribal Nations as self-determining peoples whose responsibilities to land are inseparable from cultural identity, governance, and spirituality.

For the Mexican, Chicana, Latina/o, Hispanic, and Filipina ranchers, their connections to land are shaped by deep generational ties to specific regions, land grants (originally stolen Indigenous territories), and long histories of dispossession under Spanish, Mexican and U.S. settler rule. Their presence on these lands reflects both continuity and displacement, as descendants of Indigenous peoples whose relationships to land were transformed through colonization, racialization, and assimilation policies that sought to sever Indigenous identity from cultural practice. A few Chicana, Latina/o and Hispanic ranchers expressed pride in knowing or honoring their Indigenous lineage, even when unable to trace its exact origins due to colonial erasure. This layered sense of Indigeneity, as articulated within Chicana feminist frameworks, recognizes both ancestral lineage and the colonial disruptions that have shaped how belonging and identity are expressed. Recognizing these intertwined histories is essential to understanding how each community articulates care, responsibility, and belonging in relation to land, community and future generations.

Participant co-researchers represented a wide range of ranching and farming operations, including cattle, sheep, bison/buffalo, horses and crop farming. Most were multi-generational ranchers, while a few were first-generation ranchers or had grown up on family ranches or farms but were not currently ranching at the time of our plática. Ages ranged from participants in their 20s to elders in their 80s, offering intergenerational perspectives that reflect the diversity of experience, leadership, and land-based knowledge across diverse social and ecological contexts.

Table 1. This table provides an overview of the aggregated demographic and ranching characteristics of all 23 participant co-researchers who took part in this study.

		Women (n=14)	Men (n=9)
Region	Cheyenne River Sioux Reservation	4	
	Navajo Nation	1	
	New Mexico	3	5
	Colorado	5	3
	California		1
	Montana	1	
Self-Identified Tribal and Cultural Affiliation	Lakota	4	
	Navajo	1	1
	Isleta Pueblo		1
	Mexican		2
	Chicana	1	
	Hispanic/Latina/Chicana	2	
	Hispanic/Latina	1	
	Hispanic	4	4
	Latino		1
	Filipina	1	
Age	< 30	4	2
	30-50	6	3
	>50	4	4
Primary Operation Type	Cattle	7	7
	Sheep	2	
	Bison/Buffalo	1	
	Horses	1	
	Rodeo Horses and Rodeo Cattle	1	
	Only Crop farming	2	
	Not currently ranching, reflected on past cattle ranching operation they had/ran		2
Operation Size	Small (< 100 head of livestock)	5	5

	Medium (100-300 head of livestock)	4	2
	Large (> 300 head of livestock)	3	
	Small Crop Farm	2	
Family Ranching/Farming History	First-Generation Rancher	1	1
	Multi-Generational Rancher	11	8
	Multi-Generational Farmer	2	

All geographic locations participant co-researchers listed are located on the traditional and contemporary lands of Indigenous Nations (*Native-Land.ca | Our Home on Native Land*, n.d.). All 23 participant co-researchers are included to reflect the full geographic, cultural, and operational diversity represented in this study. Cultural and Tribal affiliations reflect participants' self-identifications shared during our pláticas. Several participants described themselves using multiple cultural or regional terms such as Hispanic, Latina, and Chicana to reflect the fluid and overlapping nature of their cultural belonging. In these cases, combined categories (for example, Hispanic/Latina/Chicana) were used to accurately represent how participants situated themselves within interconnected cultural and historical contexts. Operation size reflects herd size where applicable.

While the majority of participants were actively ranching at the time of their pláticas, a few contributed perspectives shaped by related land-based and ecological work. Two women in Colorado were farming rather than ranching, one growing alfalfa while building out her ranch to get a cattle herd in the near future, and another growing alfalfa and a family garden with her daughter. Though not ranching per se, both women's experiences reflect long-standing forms of rangeland-stewardship, intergenerational responsibility, and agricultural leadership integral to these ranching communities. Two men were also not ranching at the time of their pláticas but were long-time professionals in rangeland management who reflected on their direct experiences growing up on and previously managing family ranching operations. Their inclusion enriches the

study's historical and intergenerational perspectives on ranching life across the regions represented.

This study was part of a broader USDA-NRCS Conservation Innovation Grant project titled *Expanding and Testing the Utility of the Land Potential Knowledge System (LandPKS) – an Open-Source Grazing Land Evaluation Tool*, conducted in partnership with The Nature Conservancy and other collaborators. As the CSU graduate research assistant, I led the social science component of the project, conducted pláticas with ranchers, and supported outreach efforts. In consultation with my initial advisor, Dr. Maria Fernandez-Gimenez, and The Nature Conservancy project lead, Terri Schulz, we decided to focus on ranchers who have been historically underrepresented or excluded in rangeland outreach and research, including Indigenous ranchers, Black ranchers, and ranchers of color. This focus aimed to ensure that the LandPKS app would better meet the needs and interests of a wider diversity of ranchers, including those managing smaller-scale operations.

The full USDA-NRCS Conservation Innovation Grant final report is provided in Appendix D. That report notes that I conducted pláticas with thirty-one Indigenous ranchers and ranchers of color, and a few farmers of color, focused on the adoption of agricultural and conservation innovations. These participants included individuals who were actively ranching, farming, no longer ranching but spoke from their prior ranching experience, or engaged in related ecological work such as rangeland management, conservation, and agricultural education. For this thesis, I included demographic data and interpretive findings based on twenty-three of those pláticas. Seven were excluded because they were conducted prior to the start of my thesis and did not include consent language allowing their inclusion, and one participant requested not to be included. Of these twenty-three participants, fourteen were women and nine were men, and

nearly all were actively ranching at the time of their pláticas. However, the more in-depth analysis presented in this thesis specifically centers the ten women participants who were actively ranching at the time of their pláticas. This focus serves as a corrective to long-standing exclusions in United States (U.S.) rangeland science, which has historically centered white, Euro-American men and, to a lesser extent, white Euro-American women, while marginalizing or erasing the contributions of Indigenous ranchers, Black ranchers, and ranchers of color, especially women ranchers of those communities.

By centering the voices, knowledge and leadership of these 10 women, this thesis highlights the depth of experience and relational expertise that has always existed but rarely been acknowledged in U.S. rangeland science research. The diversity represented in their ranching operations, cultural backgrounds, and generational herstories reflects the breadth of knowledge, care, and leadership that has long existed yet been overlooked. Their lived experiences illuminate the social, political, and herstorical contexts shaping ranching today and expand the possibilities for more inclusive, equitable, and culturally grounded approaches to rangeland science and management.

Table 2. Provides an overview of the aggregated demographic and ranching characteristics of the 10 women ranchers whose pláticas are the central focus of this thesis.

		Women (n=10)
Region	Cheyenne River Sioux Reservation	3
	Navajo Nation	1
	New Mexico	2
	Colorado	4
	Lakota	3

Self-Identified Tribal and Cultural Affiliation	Navajo	1
	Chicana	1
	Hispanic/Latina/Chicana	2
	Hispanic/Latina	1
	Hispanic	2
Age Range	< 30	3
	30-50	4
	>50	3
Primary Operation Type	Cattle	7
	Sheep	2
	Buffalo/Bison	1
Operation Size	Small (< 100 head of livestock)	3
	Medium (100-300 head of livestock)	4
	Large (> 300 head of livestock)	3
Family Ranching History	First-Generation Rancher	1
	Multi-Generational Rancher	9

This summary illustrates the breadth of contexts in which these women ranch, from largely multi-generational cattle operations across the Cheyenne River Sioux Reservation and Navajo Nation, to sheep and cattle operations in Colorado and New Mexico, and buffalo rematriation[5] on the Cheyenne River Sioux Reservation. It also underscores the intergenerational range of perspectives represented, spanning from women in their 20s to elders in their 80s.

[5] Rematriation refers to the process of reclaiming and restoring Indigenous relationships with land, seeds, water and cultural practices, centering Mother Earth and ancestral responsibilities rather than colonial frameworks.

3.3 Participant Co-Researcher Outreach and Relationship Building

Guided by my Chicana and Indigenous feminist methodology, my process of connecting with participant co-researchers was grounded in relationship, reciprocity and transparency. I reached out through Black, Indigenous, and people of color-led ranching, agricultural, and conservation organizations, as well as trusted peers and colleagues I had built relationships with over nearly a decade in this field. I introduced myself, shared the purpose and goals of the research, and asked whether they knew Indigenous, Black, or other ranchers of color, especially women, who might be interested in sharing their stories. This approach reflected my commitment to research that is relational and accountable rather than extractive.

Organizations and networks I connected with included the Intertribal Agriculture Council, Indian Nations Conservation Alliance, Indigenous Grazing Lands Coalition, First Nations Development Institute, Black Ranchers and Farmers of New Mexico, National Latino Farmers and Ranchers Trade Association, Sangre de Cristo Acequia Association via Colorado Open Lands, among others. I also reached out through existing networks in Cooperative Extension, universities, federal agencies, nonprofit organizations and professional peers (see Appendix A for the full list).

To build trust and ensure transparency, I shared my thesis proposal, research cover letter and personal background with organizational contacts when introducing the study. This allowed them to understand its purpose, design, and decide whether they wished to share it within their networks. When organizational contacts or peers referred me to potential participants, I followed up directly, either through a personal email or via an introductory email sent by the recommender, providing the same information and offering to schedule a brief phone call to introduce myself and answer any questions.

If a potential participant expressed interest in taking part, I scheduled their plática at a time and through a format of their choice, by phone or video call. I emphasized that participation was entirely voluntary and that they could decide whether and how they wished to take part. Before the scheduled plática, I sent the list of guiding questions so that they could review them, reflect and prepare in ways that felt right to them. I also resent the research cover letter as a reference document outlining the study's purpose, confidentiality measures, and voluntary participation. At the beginning of each plática, I reviewed this information again and obtained verbal consent to proceed and record the plática.

As the study progressed, several participant co-researchers recommended other ranchers they knew who might be interested in participating. Some connected me directly with peers, relatives, or colleagues after learning more about the study or taking part in their own plática, following a snowball sampling approach (Noy, 2008). These organic referrals reflected the trust, mutual respect, and shared purpose that shaped this research.

My outreach efforts were also shaped by my positionality. As a brown woman in this field, with a Chicana feminist politic[6], I brought shared lived experiences and political consciousness[7] that helped foster trust and reciprocity. This positionality helped potential participant co-researchers feel more comfortable engaging, knowing that their stories would be received by someone who could understand, respect and honor their realities through some shared cultural and lived experiences.

[6] A Chicana feminist politic refers to a way of seeing and acting in the world shaped by Chicana feminist thought and activism. It resists systems of oppression such as sexism, racism and colonialism, while affirming cultural identity, community care and liberation.

[7] Political consciousness refers to an awareness of how systems of oppression such as racism, sexism, classism, and colonialism shape people's lives and opportunities. It means recognizing that these are not just individual experiences, but structural forces that affect entire communities.

Through this process, grounded in transparency, accountability and care, I connected with 23 Indigenous ranchers and ranchers of color who generously shared their herstories and knowledge through our pláticas. This approach embodies the principles of Chicana and Indigenous feminist research, where recruitment itself becomes a practice of relationship-building, mutual respect, and collective responsibility.

3.4 Ethical Approval

This research was reviewed and approved by the Colorado State University Institutional Review Board (IRB) (Protocol ID: 20-10114H, approved June 2020). All participants received a consent form outlining the study's purpose, procedures, and voluntary nature. Informed consent was obtained prior to each plática, verbally. All identifying information was kept confidential in accordance with approved ethical procedure.

3.5 Data Collection

This thesis draws on in-depth, semi-structured pláticas with ten women ranchers across the western bioregion of Turtle Island, specifically the Cheyenne River Sioux Reservation, the Navajo Nation, and regions of New Mexico and Colorado. Pláticas, as both method and praxis, created a space for sharing stories grounded in relationship, reciprocity, and trust. They were designed to honor the varied ways of knowing, realities and lived experiences of the participant co-researchers as co-creators of knowledge, rather than as subjects of study.

Each plática lasted between one and four hours, depending on the participant co-researchers' availability and what they wished to share. Due to the COVID-19 pandemic, all pláticas were conducted by phone or video conference call. At the beginning of each plática, I reviewed the purpose of the study, how the information would be used, the measures in place to

protect participant confidentiality, and the voluntary nature of participation, following the ethical procedures approved by the CSU IRB.

The plática protocol included open-ended questions about participants' ranching experiences, their ranching operation goals and motivations, challenges they've faced as ranchers, strategies to overcome those challenges, successes they are most proud of, and perspectives on innovations such as the LandPKS mobile app. I also shared a brief demonstration video of the app to gather feedback about its potential applications for rangeland monitoring and decision-making, including rapid soil identification, vegetation monitoring, forage utilization and wildlife habitat assessment. After viewing the video, I asked participants about their initial impressions, whether they believed the tool could be useful in their ranching operations, and if they would be interested in participating in a future LandPKS virtual webinar or in-person workshops. While the protocol provided a flexible structure, conversational and relational nature of the pláticas created room for participant co-researchers to guide the direction of each plática in ways that reflected their priorities and lived experiences.

After conducting the pláticas with the first seven participants, I realized that the structured format of my initial plática protocol limited the depth and natural flow of conversation I hoped to create. Guided by a Chicana and Indigenous feminist methodology emphasizing reflexivity and adaptability, and with guidance and approval from my initial advisor, María Fernández-Giménez, I revised the plática protocol mid-August 2020, after completing pláticas with LERw1, LERw2, LERw3, LERw4, LERm1, LERm2 and LERm3. The revision aimed to support deeper storytelling and expand the scope of inquiry to more explicitly address identity, access to resources, intergenerational knowledge and future-oriented goals. The revisions remained consistent with the approved CSU Institutional Review Board protocol and did not

alter the study's population, purpose, or ethical procedures. The revised protocol included additional open-ended and demographic questions, providing greater context and inviting participants to share their experiences in more holistic and self-directed ways. Both the original and revised plática protocols are included in the appendices (see Appendix B for the Original Plática Protocol and Appendix C for the Revised Plática Protocol).

While facilitating the pláticas, I practiced deep listening, paying attention to what was said and left unsaid, asked clarifying questions, and held space for participant co-researchers to guide and expand their stories in their own time. With their permission, all pláticas were audio-recorded and transcribed verbatim by Rev.com transcription service shortly after each plática. I then reviewed each transcript line by line against the audio recording to ensure accuracy.

My work extended beyond data collection and analysis to include developing and co-facilitating workshops and webinars on adaptive rangeland management and monitoring, advocating for the design of bilingual training materials, and leading outreach and relationship-building with Indigenous, Black and people of color-led agricultural and conservation organizations and networks. Insights from the pláticas informed these outreach efforts, shaping how project partners adapted LandPKS materials, fact sheets, and workshops to better reflect the experiences, needs and interests of divers ranching communities across the western bioregion of Turtle Island. This collaborative effort contributed to a broader project impact that reached over 100 ranchers and service providers across nine states.

3.6 Data Analysis

Data from the pláticas was analyzed through a reflexive and iterative approach that included, 1) multiple readings and re-readings of transcripts and notes, accompanied by listening to plática audio recordings, 2) open coding of the data and memoing about constructed codes,

and 3) continuous written reflection in a research journal (Bazeley, 2020). Preliminary analyses of initial pláticas helped me refine my approach for subsequent pláticas. I paid close attention to which questions required more clarification or context and adjusted accordingly in later pláticas. This iterative process reflects a feminist methodological commitment to reflexivity and adaptability, centering participant co-researcher voices rather than rigidly adhering to a predetermined script. These adjustments created more space for participant co-researchers' stories to unfold in their own words, enriched the depth and nuance of the knowledge shared and fostered deeper trust and reciprocity, making the relationships themselves a central source of knowledge.

Once all pláticas had been conducted and initial open coding completed, I analyzed the data thematically. In the first round of coding, I used open coding to identify significant ideas, experiences, and meanings expressed by each participant co-researcher. These open codes were then compared across all pláticas to identify recurring patterns. Through this process, I observed clusters of related codes that formed the basis for more focused themes used in the second round of coding. These themes included: ranchers' primary goals and motivations, the challenges they face, their successes and sources of pride, and their perspectives on, openness to, or concerns about a conservation innovation tool such as LandPKS. Thematic analysis required moving back and forth between the data, the codes, and the emerging patterns to understand the complexity of participant co-researchers lived experiences in ranching and how these shaped their rangeland management decision-making processes and adoption (or not) of innovation such as LandPKS (Glesne, 2015). This thematic approach also provides a foundation for ongoing theory development (Boyatzis, 1998).

3.7 Credibility and Trustworthiness

To ensure credibility and trustworthiness throughout this study, I employed theoretical triangulation across plática recordings, notes, and codes to check for convergence, inconsistency, and contradiction in my inferences (Bazeley, 2020). As a form of member checking, I shared plática transcripts and audio recordings with each participant to validate for accuracy (Birt et al., 2016). I also wrote with rich, thick description, and lastly, engaged in peer-reviewing and debriefing with my advisor and graduate lab mates throughout the study.

Furthermore, I aimed to facilitate the pláticas in a way that would support participant co-researchers to feel safe and free to share personal stories and experiences. I remained reflexive about how my own standpoint and social location influenced my interpretations. Data analysis was iterative and guided by ongoing awareness of my positionality, with findings presented as clearly and honestly as possible. Trustworthiness was further supported by my own lived experiences and positionality as a Chicana researcher with a Bachelor of Science in Rangeland Ecology and Management, more than five years of experience in this field of rangeland ecology and management, and by my academic pursuit of a Master of Science degree in Rangeland Ecosystem Science.

4. Findings

This section presents the central findings of this study, based on ten in-depth, semi-structured pláticas I shared with Lakota, Navajo, Chicana, Latina, and Hispanic multigenerational women ranchers between July and December of 2020. The women live and ranch across the western bioregion of Turtle Island, including the Cheyenne River Sioux Reservation, the Navajo Nation, New Mexico and Colorado.

While the women in this study share common commitments to ranching, family, and land stewardship, it is important to recognize that they do so from distinct historical and political relationships to land. The Lakota and Navajo women ranchers speak from positions of ancestral belonging since time immemorial, Indigenous sovereignty, and Nation-to-Nation and treaty-based governance that predate colonization. The Chicana, Latina and Hispanic women ranchers, did not self-identify as Indigenous or Native women, though a few expressed pride in knowing or honoring their Indigenous lineage. Their relationships to land reflect deep intergenerational ties to specific regions, land grants (originally stolen Indigenous territories), and histories of displacement under Spanish, Mexican, and U.S. settler rule. These intersecting realities shape how each group understands care, responsibility, and self-determination in their ranching practices.

Their ranching operations vary widely, ranging from small to large-scale cattle and sheep ranches to a buffalo rematriation effort. The women range in age from their early twenties to late eighties and represent diverse generational positions in ranching, from first-generation to multi-generational ranchers. For the Indigenous ranchers in this study, their experiences, wisdom and leadership reflect their lineages of land stewardship and place-based knowledge that extend since time immemorial on their ancestral and contemporary homelands.

While my overall work within my graduate program included a total of 23 pláticas with various Indigenous ranchers and ranchers of color, the findings presented here for my thesis analysis focus on the ten women who were actively ranching at the time of our pláticas. Their pathways into ranching varied but were most often tied to family and multigenerational responsibilities. Many grew up on family ranches, some assumed their families' ranching

operations after a parent or spouse passed away or became ill, and a few entered ranching later in life through marriage.

The findings are organized into four topic areas: 4.1 Primary Goals and Motivations, 4.2 Challenges, 4.3 Successes and 4.4 Perspectives on LandPKS and Adaptive Rangeland Management Workshops. Each section includes the main theme(s) and their subthemes as identified through qualitative coding of the pláticas. Bolded text throughout this section identifies the main themes and their subthemes. Themes are illustrated through quotes and excerpts that highlight how the women expressed their experiences and perspectives in their own words. Quotes are paired with interpretation and analysis showing how these themes are enacted in practice through their daily lives, land and animal stewardship, community leadership, and broader efforts toward Indigenous sovereignty, equity and self-determination. These findings are situated within larger structural systems of oppression, including the continuing legacies of settler colonialism, racial capitalism, and the agricultural industrial complex. Despite these conditions, the women continue to embody and practice intergenerational resilience through their ongoing care for and protection of their lands, communities and futures.

4.1 Primary Operation Goals and Motivations for Ranching

Throughout our shared pláticas, when asked, *"Can you please tell me about your primary goals for your ranching operation and the motivation behind those goals?"* the women shared a wide and rich variety of visions, intentions, and values that guide their work and way of life as ranchers. These can be grouped into four broad and overlapping main themes with their affiliated subthemes:

4.1.1 Cultural and community-based goals and motivations; such as keeping the land in the family and preserving ranching as a way of life (succession), their own sense of confidence,

independence, and self-determination, passing down traditional knowledge and cultural teachings to younger generations, their relationship with animals, staying connected to their ancestors and Indigenous identity, strengthening intra-community relationships, and family as a guiding value.

4.1.2 Ecological goals and motivations; including reciprocal responsibility to land and producing healthy food through care and respect for land and animals.

4.1.3 Economic goals and motivations; such as keeping their ranching operations viable through diversified, sustainable income streams, and food self-sufficiency and living off the land.

4.1.4 Feminist liberatory goals and motivations; including buffalo restoration and Indigenous food-systems sovereignty as liberation, healing generational pain and trauma, and increasing the visibility, leadership, and presence of women of color in ranching.

Though each of these themes hold immense significance, it is noteworthy that cultural and community-based goals and motivations were present in every woman's story.

4.1.1 Cultural and community-based goals/motivations

All ten participant co-researchers spoke in depth about their cultural and community-based goals and motivations that drive their ongoing commitment to ranching and land stewardship. These goals and motivations are rooted in relational values, including collective wellbeing, intergenerational knowledge sharing, tradition, and a deep connection to identity, ancestors, animals and family. Many expressed multiple goals and motivations within this theme, as reflected in the frequencies/percentages reported below.

The most shared goal and motivation, expressed by eight of the ten women was **keeping the land in the family and preserving ranching as a way of life (succession)** for themselves and their future generations. As one Hispana rancher explained:

> The goal for me is that this ranch remains intact for not only my children's generation but their generation…I don't expect my kids will ever live there and ranch the land, but they will do kind of what I'm doing and I've been able to do it successfully, is manage and keep things going even though I don't live there…It's not the easiest way to do it, but I'm trying to find ways to ensure that the land stays…it's a huge undertaking because I realized that I will have to do a lot of the legwork myself to make sure that it doesn't become too unmanageable. You know, things will come up, that's life, but those things should not be difficult. (LERw11)

A Lakota rancher emphasized the intergenerational weight of succession sharing:

> This land has now gone four generations within my family. I am the fourth. We consider ourselves very fortunate for that, because access to owning land as an Indian is a fairly new idea and concept. To say that we're the fourth generation means that we're one of the fortunate few individuals, our families, that had our ancestor or our great grandfather have access to that way back when. (LERw1)

These reflections highlight the historical and ongoing importance of keeping the land in the family as both a cultural and political goal and motivation.

Six of the 10 women described being driven by **their own sense of confidence, independence, and self-determination**, expressed through statements such as, "I've never wanted my son to know that I cannot do something…I'm going to do whatever it takes to complete that task. You just don't give up. We just don't. That's not an option to me" (LERw6). Five of the 10 women placed a strong emphasis on **passing down traditional knowledge and cultural teachings to younger generations**. For some, this was based on family responsibility, as one Navajo rancher shared:

> And one day my mother said, 'Looks like you're the person that's going to carry on. You are... I trust you with all these livestock, tools and supplies'. So, she gave that to me. So, I thought, wow. She looked at me like I have passion for livestock. So, I'm there and we continued on. (LERw2)

Additionally, a Lakota rancher shared:

> We have this cultural teaching of the seventh generation, and so we're not doing the work that we do in our lifetime for our generation or even our kids' generation. We're supposed to focus on that seventh generation that we will never reach and we need to never meet. And we need to realize that we are a part of seven generations and three generations before us and the three after us are typically the

> generations that we'll never get to meet. And because of that, we hold a very important role in carrying out what our ancestors hoped for. (LERw1)

Four of the ten women highlighted the importance of **their relationship with animals**, describing the emotional, spiritual and relational connection they feel through caring for them. For them, tending to animals is not only part of their livelihood but also an extension of family and community care. As one Lakota rancher shared:

> I try to at least offer them the same amount of respect as I offer my family. And I try to empathize with them as much as I empathize with my family too. And quite honestly, it's usually easier to empathize with animals than it is humans sometimes. So my relation with them, I do take a personal ownership for their happiness, I guess, and their contentment. And I try to learn from them as much as I can. They have so much knowledge that we don't realize, or that we're too blind to see. They exist in nature 100%. And on top of that, they have to deal with us, who are totally ignorant to nature. So it's quite a unique experience to be able to share that relationship with my animals. Any animals. We view the wildlife that way too. We are always trying to keep our ear to the ground in the sense of listening to the cows and what they're telling us about the health of our ecosystem. (LERw1)

Her reflection shows how care for animals extends beyond economic production, revealing a deep ethical and relational worldview grounded in empathy, attentiveness, and reciprocity. For her, and many of the women, caring for animals is inseparable from caring for the land itself. For another Lakota woman who cares for a buffalo herd on her family's ranch, her connection to animals holds profound spiritual and cultural significance. She described how her relationship with buffalo is foundational to her sense of identity and responsibility:

> That love and that connection is primarily I think what comprises my Indigenous identity, because I've had the opportunity to grow up here and to live on this land with these animals and with the lessons of buffalo my whole life. And that has been what has taught me most about culture and worldview and how I position myself and how I respect other relatives than anything else. (LERw13)

Together, these reflections show that relationships with animals are central to how they understand their work, values, and worldviews.

Four women expressed **staying connected to their ancestors and Indigenous identity** as a primary goal of their ranching operation and for continuing to ranch. For example, a Chicana rancher shared:

> There's days where you feel like why am I doing this? This so difficult or this is so tedious or whatever, but on a good day, to remind myself it's like, why do I do this? Because I might be one of the only threads connecting my elders to the next generation and I give a shit. I'm dedicated to trying to continue the really positive aspects of my heritage, which is these land-based ways of knowing and these connected ways of knowing. And they require practice…I see the water as our veins, our blood line, our life force. And it's very forceful sometimes and it's very gentle and sometimes it seems like it's never going to come back. So, it's something's very precious. I see the earth as just this ... it's fertile and open, but it requires your attention and dedication. So, it's like a dance. Maybe that's what it is... the way I see it is like, it's a dance that has been passed on and in order to teach it, you have to do the dance all the time. (LERw7)

Another primary cultural and community-based goal and motivation shared by three of the women was **strengthening intra-community relationships**, by raising awareness among fellow community members not connected to ranching. They emphasized the importance of helping others in their communities, especially those not connected to ranching, better understand what ranching means to them. They described ranching as deeply rooted in cultural values, family responsibility, and community care. As expressed by a Lakota rancher:

> I've been thinking and working and trying to contemplate how I can help my community. I have a little community that's just, I don't know, I'd have to say a mile and a half, two miles just over the hill from our place here. And since this whole pandemic COVID has come up, I really haven't done much. But, what I'd like to is, I'd like to have more community involvement with them. Meaning, we raise the protein. So, I would like to have get-togethers or meals or something. That's kind of in the works that I would like to do with this neighboring community. I was just going to say our local Tribe here has tried to... They want, what would I say, livestock producers, our unit holders to donate beef. But my deal with that is, I don't know where it's going. I don't know who it's going to, or it's even getting out to the people because they don't tell us any of that. They just want us to donate the beef. Well, my thing is I want to keep it within my community. I want to keep it with the people that I know that's going to get it. I'm all for helping whoever needs help because I pray on it constantly. I have a strong sense of giving back, my mother's instilled that in me to give and you will receive. But I just don't know how to go about it just yet. My mother's family is a big family, not just her own siblings but

> we just have big families…and we got together a lot when I was younger and it was a good time. I remember always having a good time seeing relatives you don't normally see, but I remember getting together probably at least a half a dozen times throughout the year, and we'd have these big meals and we'd just spend a couple of days around different people that we don't normally see. And we got away from that as we got older, and we feel like we got more involved with other things. And the way that I try to keep that is, I'm trying to keep my family more involved with everything, with our ranching part of it. But I want to incorporate that out to my local community as well, not just my family. I just want to educate people as well. Education is huge when it comes to being a livestock producer. People have a lot of different ideas about what it is from the outside looking in. (LERw6)

This reflection illustrates how ranching serves as both a livelihood and a bridge for rebuilding relationships between ranching and non-ranching community members through shared food, cultural connection, and education. Three of the women also spoke to the importance of **family as a guiding value**, in their ranching operations, expressing that "family comes first" as a Lakota rancher expressed (LERw6). This value was further illustrated by one Hispanic rancher who shared:

> I'm able to take care of my mom. And that's the main thing is always keeping it because she doesn't have anything. She wasn't educated. She was a substitute for 40 years…My dad had my aunt's retirement because she was a teacher in his later years… after he passed and we lost my aunt's retirement that hurt us…that little extra income that comes from my teaching and [family members' name] working outside the ranch and [her sons' name] is supporting the ranch with his job. And he actually supports my mom a lot more than what people would know because he buys her food, he brings her the things that she needs…I always tell mom the people come first. I tell mom, people come first, we'll deal with the animals, we'll make sure they're safe and happy and good. But the people come first. That's the main thing. (LERw4)

Altogether, these reflections demonstrate that for the women in this study, ranching is not only a livelihood, but a way of life rooted in care, reciprocity, and intergenerational responsibility. It embodies their cultural values, family ties, and ongoing commitment to sustaining relationships with the land, animals, and community for future generations.

4.1.2 Ecological goals and motivations

Nine of the ten women spoke in depth about ecological and land stewardship-based goals and motivations to continue ranching and land stewardship. They described their work as a reciprocal relationship with the land, expressing that caring for Mother Earth is both a responsibility and a deeply instilled value.

Nine of the ten women specifically described a deep sense of **reciprocal responsibility to land** as one of their primary goals and motivations, viewing it as both as responsibility and a way to give ack to Mother Earth and to their communities. One Lakota rancher said:

> Our primary goal is actually to keep the land growing and thriving. That's our main goal here, is the land. We try to keep her maintained as much as possible. We keep it productive. We don't grub it off. I mean, that's what we call it. We don't like grubbing something off. That means there's nothing left. That's not an option here" (LERw6). Another Lakota rancher shared, "I think the largest difference between Indigenous stewardship and non-Indigenous stewardship is, we don't see or act as though there's any opportunity to express dominion over something. This isn't my land. I don't own these cattle. It's not like a *my* thing, it's a *we*. We ranch here on this land, and we take care of this land, so it can take care of us sort of thing. (LERw1)

This knowing was often shared alongside their spiritual and relational understandings of land, animals, and place. Three of the women tied their ecological stewardship goals and motivations directly to their approach to raising cattle, emphasizing **producing healthy food through care and respect for land and animals**. As one Navajo rancher stated:

> I did not want to kill the land. I want the land to be healthy. I want to make sure that this land continues to be healthy today and into the generation, whoever is going to come onto this land. So, the land should continue to stay healthy. So, that was the motivation I had and then also the food that is providing from the pasture is feeding my cattle. And my cattle must eat off of this range land to be healthy and to meet the nutrient requirement. (LERw2)

Here she illustrates a deep understanding that the health of animals, land and people are inseparable and reciprocal, each one reinforcing the other. For many of the women, this commitment to land stewardship extended beyond their own families' livelihoods. It reflected a

responsibility to honor Mother Earth and to sustain the wellbeing of their people, animals and other kin. In sum, these insights underscore the depth and breadth of the women's ecological goals and motivations the women shared, revealing a collective ethic of reciprocity and responsibility that weaves together land stewardship, animal care, community nourishment and the sacred practice of honoring Mother Earth.

4.1.3 Economic goals and motivations

Seven of the ten women described economic goals and motivations as primary reasons for continuing to ranch. All seven emphasized the importance of **keeping their ranching operations viable through diversified, sustainable income streams**. As one Lakota rancher explained:

> We do have some capacity to do some Ag tourism stuff on the place where we've got a couple of bunk houses and we'll do like ranch vacations, and horsemanship and photography clinics and stuff. I think we could really explore the blending of all of our different attempts at Ag enterprises on the place and that would increase the ability of more of my family being able to come home to the ranch and afford to live here (LERw1).

Her vision highlights how economic diversification serves not only as a financial goal but as a way to strengthen family participation and sustain the ranching way of life for future generations. For these women, economic viability is not just about maximizing profit in a conventional capitalist sense, but about ensuring that ranching remains active, intergenerational, and rooted in family and community. While only two women explicitly named **food self-sufficiency and living off the land** when asked directly about their primary goals for their ranching operation and motivations to continue ranching, nearly all of the women spoke to this value in response to other discussions held during their pláticas. As one Chicana rancher shared:

> It was leaving that was important in making me realize what we have here. Not that it's perfect, but that it's a blessing to be able to live off the land and to breathe fresh air and to have fresh food and that it's something that is a privilege. Having that is

> really just something that everybody should have access to, just like healthy food and I think when I left, I was able to see some of the discrepancies when I came back home of the issues that were happening…the social dynamics that were happening in my own community and I got angry…I would love to be able to just make a living off of the land and be able to have one job instead of having one job and then come home to another job. I think that I've seen other folks do it. I know it's not easy, but I think that would be a really cool thing to do. If it doesn't work out and it's not a good life, if it's too stressful, then I might have to rearrange how I do things. But for me, I think that it would be really great. I'm all logistical or whatever or trying to be. Try and find what I have to do. What are the minimum inputs to be able to make a good income, to also have a good life, to be able to have time to rest and do things that I like to do that aren't related to the ranch. In my mind, what are we teaching these kids if we're all stressed out and not enjoying what we're doing? Why do they want to be farmers if it's a terrible life? It's like, 'No figure out how to do it.' It's never going to be perfect. (LERw7)

These reflections highlight a shared desire and care to provide not only for themselves and their families, but for their broader communities in ways that are self-reliant, land-based and rooted in dignity. Economic goals and motivations were not framed as purely profit-driven, but as expressions of sustainability, intergenerational stability and community well-being.

4.1.4 Feminist liberatory goals and motivations

While many cultural and community-based goals overlap with broader commitments to care, belonging and continuity, a distinct set of feminist liberatory goals and motivations emerged across participant co-researchers' narratives. These reflect intentional efforts to resist colonial, patriarchal, and capitalist systems while advancing Indigenous women and women of color leadership, Indigenous sovereignty, and justice within ranching and land stewardship. Four of the ten women, shared feminist liberatory goals and motivations. Four of the women, though not stated explicitly, spoke to aspects of **buffalo restoration and Indigenous food-systems sovereignty as liberation** as one of their primary goals and motivations to continue ranching. Their visions for Indigenous food-systems sovereignty, with one of the women speaking specifically to buffalo restoration, reflect efforts to rebuild tribally controlled food systems

grounded in cultural integrity, ecological care, and community wellbeing. For these women, restoring buffalo and reclaiming Indigenous food-systems sovereignty are not just economic and ecological pursuits but also acts of resistance, healing and liberation from colonial and capitalist systems that continue to exploit land and labor. As a Lakota buffalo caretaker explained:

> My dad's always been about bringing the buffalo back with integrity, cultural integrity, and not letting them turn into cattle basically, and not treating them as such, and protecting their integrity as the sacred beings that they are…by the time I came aboard, my dad sold all his cows for buffalo way back, and started his own little herd, and then built the tribe's herd, and now we have our herd. And I've gotten to grow up here on that land with buffalo pack, and buffalo pack gets to run around, and do as they please like buffalo are supposed to do…You have to operate within the systems that are in place, and what's there, but how can you…There's always going to have to be some sort of compromise... I have a real internal personal conflict with that, how can we sell our animals to people who don't feel exactly the same way we feel…how do we break into the meat industry without, while still protecting the integrity of the animal. Because the reality is we, our people always have eaten that meat, and that was the tribal economy, the first real tribal economy to exist for us did revolve around the buffalo…How you can use the systems that are in place really to oppress people to get that money that, or the systems that are built on stolen wealth basically be it stolen extracted resources from Native land through stolen people's labor. How can you get that wealth back into the communities?...So once I got introduced I guess to the realm of food sovereignty I got really excited because A, I realized that, that's what my dad's mission has been all along this. And that's exactly what it is, and that's the platform, and the ideologies that I had been grown up, or been growing up with, and raised on my entire life, and that's my shared passion…Because when you're talking about food sovereignty you're talking about environmental justice, and you're talking about health restoration, and you're talking about cultural revitalization, and you're talking about liberation. And social justice. Because I care about all of those things. Right? And I've always cared about all of those things, and so it used to be hard for me to be like, "I don't want to grow up, and take over the ranch." I'm not meant to be the women who ranch around here. That's not ever, hasn't ever been what I envisioned for myself. I'd say that's just as much a part of it as the fact that, that's just not where my primary interests lay that I would rather be doing the research, the health research on why. But I will do whatever it takes to keep buffalo here. So if that means that I live here, and learn how to manage the buffalo here I will do that because I can't do any of the things that I want to do, or see any of the things that I want to see happen here for the land, for the people, and for the other relatives that live here without the buffalo being here. So first and foremost it's my responsibility to make sure that there are buffalo here, and to protect them, and their integrity with everything that I have. And then second from there, then I can hopefully do some of that extra supplementary research that really helps get other

> people onboard, and brings even more health... the most important thing that can happen is for the buffalo to be here. So that's what I have to keep in mind, and remember it forever. (LERw13)

Her words reflect a profound understanding of buffalo restoration as both cultural survival and liberation. For her, Indigenous food sovereignty is not only about feeding people but about healing the relationships between land, community, and economy in ways that restore balance, integrity and self-determination for future generations.

Another Lakota rancher shared:

> It's really unfortunate because the financial system that has crippled the industry and crippled the land stewards, they're not being held accountable…I'm just so pissed off at the financial institutions that are really good at finding a way back to it. But anything that can be brought to light as a poor or poorly functioning or a failure of the industry, it relates to financial constraints. A lot of our global issues in terms of climate change are as a result of the forced shift in our production practices that the Ag industry, or that the financial institutions of the Ag industry have created…If we can get our farmers and ranchers back to feeding themselves, feeding their communities is so much easier. And they're so far from being able to feed themselves that one of my number one clientele [I sell beef to] is to farmers and ranchers. They're not even eating their own meat. That's how broken our system is right now because they're so strapped trying to feed the world by 2050, they can't feed themselves. And that's a false hope that exists out there. And I really don't agree with that ideal. A lot of times when I'm at a conference or I'm listening to a presentation and they're like, 'By 2050, we have to feed three more billion people.' I'm just like, shut off. That is such a crap, a load of crap that you're putting out there in case we have to feed ourselves… on Cheyenne river, we're 3.2 million acres. There's anywhere from 70 to 100 head, a 100,000 head of cattle grazing on those acres in any given points of the year, not a single animal is sold through a livestock auction market on the reservation. So every single animal leaves this economic community and get sold elsewhere. And it doesn't keep the value of our resources, our natural resources here is exploited because that money doesn't stay in the community. It has to leave. And then from there, our cattle that are sold in Pierre South Dakota, Mulberry South Dakota and Faith South Dakota, which are pretty much all border reservation communities, those cattle then either go to Colorado or to Kansas, somewhere where they're raised in a feedlot…where they'll be processed…in one of the four large monopoly processing, and then they go to one of the four large packing plants that at which they're processed and then distributed worldwide. And so our cattle here, which I believe are raised to be in some of the most humane systems, the most re-generatively focused operations on some of the healthiest ecosystems are then sent from here. Sent from paradise into who knows where the unknown truly, and there, we don't know how they're being handled. We

> don't know how they're being fed. We don't know what they're being fed or how they're being cared for. There's no traceability there. And then we found in a recent study here on Cheyenne River that the average package of beef in our grocery store has traveled 1800 miles to get into our grocery stores here on Cheyenne river, which is just asinine because we raise better quality meat right out our front door. (LERw1)

Her words expose how current agricultural and financial systems continue to extract wealth from Indigenous communities and tribal lands while excluding Indigenous producers and their tribal communities from the benefits of their own labor. She names a critical barrier, the lack of locally controlled slaughter facilities. Because a few large corporations dominate meat processing, Native ranchers are forced into systems that limit their autonomy and restrict the possibility of truly local, tribally governed markets. She underscores the need to rebuild tribally controlled and locally located infrastructure, including processing facilities, so that resources, food and value remain within Native communities.

Together, these reflections reveal Indigenous food-systems sovereignty as a form of structural and cultural restoration. Their visions link ecological care with economic justice, emphasizing that reclaiming control over food production and distribution is central to Indigenous self-determination and collective liberation.

Among these four women, two also spoke specifically about **healing generational pain and trauma** as one of their primary goals and motivations for ranching. As one Lakota rancher shared, “There’s a lot of internalized colonialism…But I think there's a lot that has to be uncovered to get to what we all really feel deep down and know. And that is care and love for our people, and our land” (LERw13). Similarly, another Lakota rancher shared,

> And when we look backwards, seven generations...That's the generation of our ancestors that were removed from the land. And when the story or the cultural focus of seven generations from now became so prominent and became such a forefront of our stories, it was because those that were having to make these compromising deals and having to sign treaties, having to relocate and assimilate. They were

> hoping that their seventh generation from now would be able to overcome what's taking place and would be able to heal from the trauma. I get to be a part of that seventh generation, and I get to help inspire and coordinate and facilitate and engage others of my generation on this effort. (LERw1)

Together, their words describe how ranching is not only about livelihood but about healing the wounds of colonial displacement and carrying forward the strength, love, and responsibility of their ancestors. These reflections highlight ranching as a pathway for both personal and collective healing, where reconnecting with land and community becomes a means to address historical trauma and restore balance. Ranching becomes an act of remembrance, repair, and renewal across generations.

One of the four women also described her passion for **increasing the visibility, leadership, and presence of women of color in ranching**. As this Hispanic/Latina rancher expressed,

> But if you actually look at the world, women actually produce more food than men because of traditional agriculture in other countries. And if you look into Indigenous cultures, no offense to the men, but they were kind of, they'd go hunting, but the calories that the community were really eating came from the farmers and the women were the farmers…if more food is grown in the world by women, then why are we telling women they don't belong in ag? (LERw15)

Her words highlight a shared commitment to transforming who is seen, heard, and valued within ranching. By naming women's central role in food production across cultures and around the world, she challenges gendered power structures that have long excluded women of color from agricultural leadership and visibility.

4.2 Challenges

Throughout our shared pláticas, when asked *"What challenges have you faced as a rancher or in ranching?"* the women spoke to a wide and complex range of challenges they have

navigated throughout their lives and ranching experiences. These challenges can be grouped into four broad and overlapping main themes with their affiliated subthemes:

4.2.1 Institutional challenges; such as the barriers to processing their own meat and keeping it within their communities, lack of updated Tribal land ecosystem data, financial risk due to volatile agricultural commodity cycles and the agricultural-industrial complex, difficulties accessing assistance from government agencies, burdensome regulatory requirements, exploitation by unaccountable financial institutions, and lack of enforcement of regulations on Tribal open range portions.

4.2.2 Physical-environmental challenges; such as climate change, the impacts of COVID-19, livestock predators, non-native, invasive and toxic plant species, feral horses, and damage caused by neighboring cattle.

4.2.3 Local and family-level ranch operation challenges; including physically hazardous working conditions, succession and the difficulty of keeping the ranch in the family, lack of infrastructure, limited time to fully pursue their ranching goals or other dreams, and being unable to keep up the care for their land or being forced to sell their land over time.

4.2.4 Social-cultural challenges; such as intra-cultural and intra-Tribal tensions, not having a woman mentor within their cultural communities outside of her immediate family, emotional and logistical stress of being responsible for essential food production, and deep pain and trauma they and their communities must navigate, as the original herdspeople of Turtle Island, due to the ongoing legacies of settler colonialism.

The following sections take a deeper look at each of these four, often overlapping areas of challenges, beginning with the institutional barriers shaped by settler colonial systems and

structural inequities, which the women actively navigate, and push back against in their day-to-day lives, decisions and relationships with the land.

4.2.1 Institutional challenges

All ten participant co-researchers spoke in depth about challenges they face that are connected to institutional systems, such as agriculture industry structures, government programs, finance, land policy and regulation. These institutional challenges often create barriers that impact the sustainability of their ranching operations and make it even more difficult for them to remain rooted in their communities and cultural and spiritual lifeways.

The most frequently mentioned institutional challenge, named by nine of the ten women was **navigating financial risk due to volatile agricultural commodity cycles and the agricultural-industrial complex**. For example, one Lakota rancher shared:

> We all have off-farm jobs, off-farm incomes to compensate for the lack of the ranch's ability to sustain itself based on the current commodity cycle that we're stuck in, and what I would like to do is to continue to focus on rebuilding or building out our beef sales so that we can transition away from the reliance on that ag commodity cycle, and instead tap into the beef marketing ability and the additional financial income that that brings, and hopefully down the road, I would like to have my own modular slaughter facility here so that my cattle never had to leave here to be butchered. (LERw1)

Her reflection shows how industrial market structures and fluctuating agricultural commodity prices constrain independent producers, motivating them to develop alternative marketing channels and local processing options to stabilize income and reduce dependence on large industry processors.

Six women described facing **difficulties in accessing assistance from government agencies**, including programs intended to support producers. Participants described being overlooked for available programs, encountering inconsistent support, and witnessing patterns of unequal treatment across racial and cultural lines. For example, a Lakota rancher described how:

> Our local [Farm Service Agency], they'll tell certain people, I'm just going to say, of certain races, they'll tell them about certain programs, but they, I wouldn't have known about them, if it wasn't for her [a woman rancher/Director at Intertribal Agriculture Council].... I do have a cousin…that has different issues with the FSA…the local [FSA], they weren't going to help him, until he went to the state office or went to the federal office and then he got help. He had to take it a step further. Or two steps further. And we shouldn't have to do that. I mean, they're there for everybody. They're not there [only] for who they want to help. Sometimes, that's what I feel, they're only there to really help who they want to help and whatever's left and you're going to get. And what I've gotten, I'm grateful for, but I know there's probably more that I'm able to get and don't have the knowledge to just go and get it. It's not a sport…ranchers are more independent. We don't like to really ask for help, but if you're going to give it to us, then give it to everybody, don't give it to a select few. (LERw6)

Here, she highlights how racial and anti-Indigenous bias and unequal access to information within federal agricultural programs deepen existing financial vulnerabilities for Indigenous producers and producers of color.

Three women spoke about the **barriers to processing their own meat and keeping it within their communities**, expressing the need for greater autonomy over meat processing and food distribution to their communities. Two women described navigating **exploitation by unaccountable financial and agricultural institutions**, which reinforce ongoing patterns of economic extraction and dispossession in their communities. They spoke about predatory lending practices, constant financial pressure, limited transparency, and the inequitable structural power held by large meatpacking and processing corporations. These conditions restrict their economic sovereignty and prevent the value of their labor, cattle, and land stewardship from staying within their own communities. One woman named the **lack of updated Tribal land ecosystem data, burdensome regulatory requirements,** and a **lack of enforcement of regulations on Tribal open range portions** as challenges they face.

4.2.2 Physical-environmental challenges

Nine of the women spoke about the physical and environmental challenges they face that directly affect their ability to care for the land, animals and future sustainability of their ranching operations. Six women identified **climate change** as a central environmental challenge they face, describing for example, shifting weather patterns, and drought, which make land stewardship and livestock care more difficult. One Hispanic/Latina/Chicana rancher shared:

> The climate change and the evidence is in the animals and the plants. And then it gets scorching hot, where it burns off. Summertime it's definitely an issue. I don't remember it being this dramatic. And I remember... My son converted our eight-millimeter movies from back in '68 to film that we can watch now, and you see... the grass was so much higher. Like my dad was walking through a field, and the grass was up to his hips and up to his belly. And now it's barely to my knee in the good spots. So I'm like 'wow'. (LERw4)

She then went on to share that due to drought, in 2008 she had to reduce her cattle heard from 110 to 80 and has since been bouncing between 80 and 95 head, but over the last three years (~2017-2020) she has been stuck at 80 head of cattle.

Three women spoke to the **impacts of COVID-19** they were already seeing and experiencing. As one Hispanic rancher shared, "right now with COVID and you know, in our community, who has it impacted more? It's been all the agricultural workers, potato warehouses, mushroom workers, mushroom farm workers. That's like 95% of our cases. So it does go into other things" (LERw10). One Navajo rancher shared about the challenge she faces due to the spread of **plant species that are toxic to livestock, such as milkweeds.** She shared:

> I tell my children, 'These are milkweeds, they're not good for cattles.' And then, by the time like early spring, these weeds do pop up, but they mature really fast or they get brittle. And then my cows don't get to them, by that time the regular vegetation [grows in]. So that's a big plus because I know in some neighboring rangeland, the weeds come up, the cows think that's green grass, they start to eat, and then I see their cattles like, 'oh man, they're suffering from overeating the weed'. (LERw2)

Two women named **livestock predators**, while another named **feral horses** and one spoke to the **damage caused by neighboring cattle** as ongoing issues they face that strain both land and community relationships.

Altogether, their reflections show how they continue to manage their lands and livestock with resilience and creativity, despite enduing physical-environmental challenges that threaten the stability of their ranching operations.

4.2.3 Local and family-level ranch operation challenges

Seven of the women also described challenges that take place at the level of their own ranch operation, the day-to-day struggles that are deeply personal and often intensified even more by broader systemic challenges. These operational challenges reflect the strain of trying to maintain family ranching legacies and care for the land with limited time, resources, and external support.

The most frequently named challenge within this category, mentioned by six women was **succession and the difficulty of keeping the ranch in the family**. One Hispanic/Chicana/Latina woman rancher shared:

> So my grandma, she gave the farm to my dad. She basically divided it 50-50 between my uncle who never farmed and left when he was very young, and my dad got 50% and he had been farming it for 30 years and had been the main caregiver. And so it created a really horrible situation where my dad had to come up with a lot of money to pay out my uncle and we actually did a conservation easement to pay for it. So we put the farm into a conservation easement and that helped pay for that. But I don't want to ever, I told my dad, I was like, "Please don't put me in that situation." So I'm hoping. I hope he won't. I sometimes have moments where I get nervous because he talks like, "Oh, well I need to give your sisters equal share," and I keep telling him, "You saw that. So if you want to do that to me, then you know what that looks like." So I don't know about that choice, but I do encourage him to think about maybe giving smaller percentages to my sisters. So that, that way, because you never know, what if I end up with financial problems? Or something happens to me? You don't want the farm to be lost in the family, just because it was only in one person's name. So I think, in my total existential world, I think owning land is weird anyway. Because how can you own land? It's land, but

> I know that we live in the world and we have to go through all these systems. So my hope is that something like that can be done, that's my hope. And so I think one of these things we're working on this winter is hopefully devising a plan with all of me and my sisters to come up with a better plan for how to make sure the farm goes into the next generation in good standing, if that makes sense. (LERw15)

Her reflection reveals the emotional, financial, and ethical complexities of succession planning, as she works to balance fairness among her siblings with the urgent need to protect the farms future and keep it in the family.

Three women described **limited time to fully pursue their ranching goals or other dreams** because most of their time and energy goes toward day-to-day responsibilities and simply trying to keep their operations going. Two women spoke about the challenge of **exhaustion and financial strain as they work to sustain their ranching operations while juggling multiple roles with very little support.** These reflections align with what scholars describe as the "triple burden" that women in agriculture often navigate, balancing production work, household and caregiving responsibilities, and community obligations while trying to maintain viable operations (Coppock et al., 2013; Fernández-Giménez et al., 2024). As one Chicana rancher shared:

> Yeah, I think what's hard about it is that it's not always economically viable. You have to wear many hats. If you do want to make it your livelihood, you have to be a business person, be a landlord, be a water person, all these different things, mechanic, and it can get really overwhelming very easily. So, I think that is hard and also what's hard, especially now with COVID, it was getting better because I was asking for help, what's hard is often it's hard to find help to just do tasks or mechanics, your machinery goes down or something. Just that feeling of being overwhelmed is hard and it's different from being overwhelmed with a different kind of job, I've found, because you feel responsible for all this life that you've nurtured into being and then when you let them down, it's really sad. (LERw7)

Her reflection captures the deep emotional weight and economic instability that can make it difficult for ranchers to maintain their operations and continue caring for their land and animals over time.

One woman spoke to the **physically hazardous working conditions** of ranching as a challenge, and another spoke to the **lack of infrastructure** on their ranch as a key challenge to sustaining their work and their operations, stating, “And I think infrastructure too. For example with the wool, I've been dying out of my kitchen and so this to me is a big deal, because I didn't really have a space and so stuff like that. Just actually building infrastructure is important and definitely lacking. So I'm working on that now.” (LERw15)

Together, these accounts illustrate how sustaining a family ranch requires far more than physical labor. It demands constant financial, emotional and relational work to preserve both the land and a way of life that remains vital but increasingly difficult to maintain. Additionally, the above quotes highlight the personal, familial and infrastructural pressures the women navigate as they strive to hold on to their land, their lifeways, legacies and their visions for intergenerational continuity.

4.2.4 Social and cultural challenges

Four of the ten women spoke to challenges that were social and cultural in nature. The challenges included both interpersonal and systemic dynamics that shaped the women’s sense of belonging, leadership, and emotional responsibilities they carry as ranchers within their communities. Two women specifically spoke about **intra-cultural and intra-Tribal tensions** especially when community members who are not involved in ranching misinterpret the work, values, and motivations of those who are. One Lakota rancher described how these divisions reflect deeper histories of colonization and cultural disruption, explaining:

> There's a real divide, and real internalized colonialism within our community, on our reservation…With the west end and the east end, with the west end being quote more traditional, and the east as being less traditional a lot of that has to do with cattle culture, and this idea of the real buy-in to capitalism, and colonial structure. Which I think is directly linked to cattle culture, and intermarriage. That really just does come with it. And so there is just I think, an assumption that, that's just how

> the east end is. And that's not how my family is, and so a lot of what we try to go by are cultural values, and actual traditional values. And that's why we do not raise cattle. That is why my entire life is dedicated to buffalo restoration. (LERw13)

Her reflection highlights how colonial systems continue to shape internal divisions within Indigenous communities, influencing both cultural identity and approaches to land and animal stewardship.

One woman spoke about the difficulty of **not having a woman mentor within their cultural community outside of her immediate family.** While this was only explicitly named at this point in the pláticas by one woman, I asked all the women at the end of our pláticas, "Who do you rely on for support in hard times and mentorship in ranching?" and the majority, similarly shared that they did not have women mentors of their same cultural background outside of their immediate families at the time of our pláticas. For example, one Hispanic/Latina rancher said:

> I wish I had somebody that I could say was my go-to. I really don't... I have people who would be there for me in a pinch. But that's different than what I'm hearing you ask. Yeah, of course my husband, my husband is like, if something needs doing, he's capable of doing it. If I can't make it, he'll make it. So he's been a big part of he's my ride or die… but I don't have that real go-to person. I wish I did. I wish I did. (LERw11)

This pattern reflects more than individual circumstances. The limited availability of culturally grounded mentorship among women ranchers is tied to the impacts of colonization, which disrupted kinship networks, displaced communities, and intentionally fractured intergenerational relationships across space and time (Cajete, 1994; Simpson, 2020). These legacies continue to shape who has access to peers, mentors, and culturally aligned support in ranching today. The women's reflections make clear that relational support is not only desired but necessary for sustaining their operations, knowledge and wellbeing. Additionally, one woman, a Navajo rancher described the **emotional and logistical stress of being responsible for essential food production**, explaining:

> And then essential role. I'm always considering that we have the essential role of raising food and products so that's challenging. And of course, like I said, healthy herd because we're serving the consumers out there, we're serving food for them and products nationally and maybe globally through the trade agreement. So, since I grew up with livestock, I do have a passion to continue focusing on raising cattle, because our main purpose is to provide food and clothing or products of cattle. And in return, things like that to the world and the meat and the stuff like that. And I like my young children and my grandkids to continue in it and to keep the agriculture life going. So, that's my focus, keep it going because we're feeding the world, taking care of the land. So, it's going to be us that cares for the land that cares for the animals. We're going to keep it up. So, because we have knowledge in it, we have the experience and that's our responsibility. That's what keep us working. We're essential people. (LERw2)

Through this reflection, she is expressing the deep sense of purpose and pressure that comes with producing food for others, reflecting how essential work in agriculture carries pride and a constant responsibility. Additionally, one Lakota rancher described the **collective trauma experienced as the original herdspeople of Turtle Island due to ongoing settler colonialism.** She spoke in depth about how this trauma is not individual, but collective, intergenerational, and systemic, and how it continues to shape the lives and opportunities of her community. As she shared:

> I'm passionate about carrying that conversation away from ranchers though and also into the communities and helping communities to heal and understand that it isn't fair that... There is a lot of pain and trauma I would say that exists because we are the original herdsmen of this continent. That's what our role was. And there are so many community members that don't have the ability to be herdsmen anymore because their grandparents never ranched or never were given an opportunity to ranch. And so they don't get to ranch. And that's like a genetically traceable concept is like we're supposed to be out there in nature. There's a reason that we don't sunburn. It's because we've been more exposed to the sun and over time our genes have adapted to be able to withstand the sun exposure and to engage in taking care of our plant relatives. (LERw1)

This reflection highlights how trauma is carried across generation, tied to land, memory, and forced exclusion from ancestral roles, and how healing and Indigenous sovereignty remain central to community resilience.

In sum, their stories reveal both the strain of navigating isolation, inequity, and colonial legacies, and the strength required to sustain culturally grounded, community centered ways of ranching.

4.3 Successes

Throughout our shared pláticas, when asked *"What are the biggest successes or accomplishments you've had as a rancher or in ranching?,"* the women shared a wide variety of successes, based on their own definitions of achievement, including personal growth, community care, ancestral connection, and everyday persistence. These successes hold tremendous value as they represent the ways in which these women continue to lead, shape, sustain, and reclaim their people's lifeways in ways that honor land, animals, their community, their ancestors and themselves. These successes can be grouped into five broad and often overlapping main themes with their affiliated subthemes:

4.3.1 Persistence, identity, and cultural continuity; such as keeping the ranch in their family and community, being a role model within their ranching community, and reclaiming their cultural identity.

4.3.2 Entrepreneurship and economic success; including financial sustainability, being able to access government or Tribal programs, entrepreneurial and innovative approaches to ranching, and acquiring their own cows.

4.3.3 Land and animal stewardship; such as improving the health of the land through their stewardship practices, producing healthy, high quality livestock with good genetics, providing habitat and a sanctuary for wildlife, and feeding her family through raising and processing their own meat.

4.3.4 Knowledge and education; including gaining knowledge from Tribal organizations and land management agencies, and keeping updated on and meeting burdensome regulatory requirements.

4.3.5 Personal growth, relationships and support; such as supporting someone else's dream to ranch, and balancing work, school and ranching.

The following sections take a deeper look at each of these five areas of success, despite the challenges, despite the barriers and often because of the love they hold deeply for their ancestors, communities, families, land, and more-than-human kin.

4.3.1 Persistence, identity and cultural continuity

Nine of the ten women shared stories of success that reflect how persistence, identity and cultural continuity are woven tightly into their purpose and pride in ranching. These successes were also shared with a recognition of how hard they worked, how much they had to carry, what they had to resist and what they had to protect, in order to reach them.

Five women spoke to the ways they continue **persevering through hardship to keep ranching alive** as a success they are most proud of. As one Hispanic rancher explained:

> Just maintaining the ranch and that, in itself, is my accomplishment… [husband that passed away's] love for his ranch and what it meant to him is a pleasure for me. Just to be able to continue it, to do what he would want me to do for it and to keep it up and to keep it within our family and hope that my family will take care of it and continue. (LERw14)

Her words capture how perseverance itself becomes a form of success, reflecting the dedication, love, and responsibility that drive sustaining her ranch and family's legacy through any challenge.

Five women described **keeping the ranch in their family and community** as one of their top successes, signifying the immense work and commitment it takes to protect the land,

their homes, and their animals from having to be reduced or sold over time. Four women described **being a role model within their ranching community** as a success they are very proud of and the responsibility they take in sharing their experiences, knowledge and values with others. For example, one Navajo rancher shared:

> I'm always voicing my interest in livestock. Three times I was nominated rancher of the year. The first one was me and my late husband. The second two was by myself. So I think everybody looks up to me like, okay, she's [referring to herself] going to speak for us. And then I see the experience that everybody goes through because I experienced [it] as a producer, cow and calf producers. I experienced a lot of good things and little things that needs to be improved. And I see the other ranchers the same way. So I always talk for them at some meetings, where a voice needs to be said on behalf of the livestock industry or cattle industry. (LERw2)

Her words underscore how leadership, recognition, and advocacy intertwine. She's not only modeling what's possible, but also actively carrying her community's and Tribal Nation's voice into decision-making spaces

Three women described their success in terms of **reclaiming their cultural identity** through ranching and land stewardship. They spoke about reconnecting with their animals, their families, and their communities by purposefully carrying forward ancestrally rooted land practices. For example, one Hispanic/Latina/Chicana rancher shared:

> I kind of came to him [her dad] and was like, 'Hey, let's, I have a business idea.' And so that's why we got back into them…my grandparents, my great, great, great, great, great, great, great grandparents had sheep, great, all my family had sheep forever. If you look at a lot of the early Hispanic settlers, that's what they raised was sheep. And then they brought the sheep to the Native Americans and a lot of the Pueblo Indians and the Navajo and all of them had bunches of sheep. So I think my family probably had sheep for a very long time. And my grandpa did have a pretty good bunch and he used to range up in the mountains, take them up into the San Juans. But we don't have a back permit anymore…Since that flock of sheep got sold, the permit got sold as well. So now we just have a farm bunch that we raise on the farm. (LERw15)

Her reflection illustrates how reclaiming cultural identity through ranching involves honoring ancestral practices while adapting them to contemporary contexts to sustain both heritage and

livelihood. Her framing also reflects a common Hispané narrative of the region's history. It is important to clarify that while sheep were introduced by Spanish settler colonists, Pueblo, Diné, and other Tribal Nations actively shaped, expanded, and led their own sheep herding traditions in ways that remain central to their Indigenous sovereignty, cultural identity, and land-based lifeways today.

Together, these stories show how persistence, cultural identity, and community care form the foundation of each these women's success, revealing ranching not only as a livelihood, but as a living expression of heritage, responsibility, and survival.

4.3.2 Entrepreneurship and economic success

Seven of the ten women spoke about forms of success connected to their financial success, creative problem-solving, and economic empowerment. While none romanticized the economic realities of ranching, they named their experiences of innovation, support and accomplishment that allowed them to build something of their own. Five women shared about their **financial sustainability**, a significant success given the financial risks and volatility of agricultural markets. One Hispanic rancher explained how she navigates the financial side of major conservation projects on her operation. Although she did not name the specific practice or project(s), she described working with NRCS, planning for seed and fertilizer costs, anticipating multi-year establishment timelines, and preparing early for the portion of the project she would need to cover herself. She shared:

> Even the financing piece, I just figured out really early on what the budget was going to be estimating, what I was going to get from NRCS. But I knew what was the balance I needed to come up with. And so I got the financing really early on in the game. And got that arranged. Some of the costs are still unknown. How much is seed? 30,000? How much is fertilizer? So I wasn't really sure how much it was all going to cost… I think it's easy to say, "Oh, NRCS is going to give me this money and it's going to take care of everything." So I asked those questions really right at the beginning. How much is this project going to cost? And about how

> much are you guys going to pay for? And so that way I knew what my balance is I need to come up with, at least just for the project. Then you add the fertilizer and you add the seed and then you add waiting two years. Just really anticipate understanding of budget and what that means... I'm [in my 60s], so it's not like I'm just starting off and don't have assets. And those kinds of things over my lifetime. I did not understand, I didn't know at the time I was getting a good credit history and all that. But now I'm benefiting from that. So this just didn't happen...It's been a long process. I didn't know where it was going to take me. But it did and it got me here…I say, I'm good at jumping around or over barriers. There's always a way to get around stuff. (LERw10)

Her reflections show how financial success in ranching often comes from years of steady learning, resourcefulness, and persistence, turning each challenge into a step toward greater stability and independence.

Five women also described their successes in **being able to access government or Tribal programs** (like cost-share programs, land improvement grants) that helped them improve their land or infrastructure. For example, one Hispanic/Latina rancher shared:

> I feel that I have been successful in pulling this off from far away and in the fact that I'm making improvements and because of the grant, I feel like I made my case. You know what I mean? Those grant monies are hard to come by, right? So I feel super blessed and I'm very... I guess if they felt that level of confidence in doing this for me to carry through this project, then I should feel the same way about myself. You know what I mean? It's just like another stamp of approval. Not that I really need it at the end of the day, but it is when it's down. [name of NRCS staff person] at the NRCS just has been a mentor me. Right? If I had a question related to something, she would be quick to share what she knew or point me in the right direction if it was out of her area of expertise or wheelhouse, just so those kinds of things have been significant to me because while I do know the historical aspect of what my dad would have had suggested with the, if this, then that kind of situation would come up outside of that, right? She's been a good mentor…It's the fact that she's a woman is, is huge. It's just really wonderful. (LERw11)

Her reflection highlights how accessing grant support and mentorship through NRCS strengthened her operation and her confidence, showing how women-to-women support within agricultural programs can make technical systems more accessible and empowering.

Three women described their **entrepreneurial and innovative approaches to ranching**

as a success, such as starting new enterprises to diversify their income streams. For example, one Hispanic/Latina/Chicana rancher shared:

> I started going to the shows and realizing that people are bringing back the traditions, these older traditions of keeping sheep and doing beautiful wool and I don't know, there's just this kind of the bringing, no, I don't know if it's bringing it back or just continuation of those traditions. And I started seeing that people are taking ... if you are to sell raw wool to a warehouse, you can only make a dollar a pound. But if you start selling online and making yarn out of it and making higher value products, then you can start improving the value per animal that you get. And so I have to be honest, sheep was not the first thing I tried. I also have some pigs that were to be pasture pigs, but basically kept running away from home. And one time they stole the neighbor's Christmas decorations. I was so embarrassed. And so I did do a couple of things before the sheep. I had a field of hops, for beer brewing, but they did so poorly here. I wanted something that was more suited to the area because the hops, a lot of them winter killed and then things ate them and then they didn't produce, then and I just kept thinking, it's got to be something in the pigs, the same with the pigs. They got cold in the winter and there wasn't a lot to eat. And we live in this high desert valley and sheep are just, they're just well suited to it. (LERw15)

Her reflection illustrates how entrepreneurship can coexist with cultural continuity, showing how innovation within ranching is often grounded in inherited knowledge and adapted to contemporary conditions.

One woman named **acquiring their own cows** as a powerful milestone she was very proud of. All together, these reflections show how the participant co-researchers define economic success not only through profit or expansion, but through perseverance, creativity, and cultural grounding. Their approaches to financing, innovation, and diversification reveal how economic empowerment in ranching is inseparable from relationships, learning, and ongoing work of sustaining their land and legacy.

4.3.3 Land and animal stewardship

Six of the ten women described successes based in how they care for their land, animals and ecosystems. These successes were deeply important to the women and their understanding of

what ranching truly is. Three women described **improving the health of the land through their stewardship practices** as a key success. One Lakota rancher illustrated this when she shared:

> Really, we've been able to promote a whole lot more diversity since I've come home and I started implementing more conservation planning practices. We are really seeing an increase in our native plant species…a significant reduction in soil erosion, and the riparian areas are now not just wet cricks that you can't cross, there actually is forage there. We're even seeing some volunteer cottonwood trees come up in our cricks…because of our management, we're actually starting to see some of those trees come through. And they're just coming on their own. It's the seedbed is revitalizing and waking up again. We're seeing an increase in our animal species too. We actually have found beavers again, which is insane because we don't have trees. But they're making the best that they can with cattails. And then we've seen an increased diversity in our birds. (LERw1)

Her reflection shows how thoughtful grazing management and land stewardship planning directly strengthened the health of their rangeland ecosystem, restoring vegetation, wildlife, and water systems through attentive stewardship.

Two women shared that **producing healthy, high-quality livestock with good genetics** was a major success for them. Two women spoke to **providing habitat and a sanctuary for wildlife** as one of their successes. One Chicana rancher described the pride she held in **feeding her family through raising and processing their own meat** as a very important success, sharing:

> As a rancher, I think a big success is knowing how to butcher and learning more about how to process the meat and getting better at that, or say, using more of the meat and eating more of what we grow in that way. To me, that's the most important is that our family's eating good. I think as a farmer, a big success is just, I guess, that I'm able to make a profit off of what I am growing, and still even though I'm working another job It's not going to waste. To me that's a big success that it's going to the community or it's going to our family. I think, because I know about the industrial food system and I know the alternative is to just be as local as possible and be as equitable to the land, equitable to each other, and equitable to the animals and plants as possible. The only way to do that is really trying to keep it... Not necessarily that small is better than everything or anything like that, but it's interesting in our area. Our poverty and our isolation, there's no other options. It's like, "Okay, we'll just do what we've always done." Luckily, that's a good thing. I think it's important because hopefully that at least sustains our community in a good

> and wholesome way. We're building a strong community that can then hopefully encourage other strong communities and have a tapestry of...I mean, cities have kind of a tapestry of a food system versus one pipeline. So if one fails, the other ones can support it. But if one gigantic one fails, then there's kind of chaos, which I think we got a little teased off this year with some food shortages and scared. (LERw7)

Her reflection signifies how ecological care and food sovereignty are intertwined in her ranching practice, showing that true success come from feeding her family and community through ethical, land-based stewardship. In sum, the women shared that their definitions of success go far beyond profit or production. For them, success also means nurturing healthy land, animals and their communities in ways that restore balance, strengthen local food systems, and sustain life for future generations.

4.3.4 Knowledge and education

Four of the ten women described success in terms of gaining and applying knowledge that supports them in navigating complex systems and strengthening their ranching practices. Three women named **gaining knowledge from Tribal organizations and land management agencies** as a success, especially when it allows them further to advocate for and gain access to supportive resources for their operations. For example, one Lakota rancher explained:

> We try to do more of the instinctive migratory grazing. We do some electric fences to divide our big pastures down from a 1,000-acre pastures or 800 acre pastures into small cells. But then we actually go out and we'll ride our horse and we'll kind of locate those cows on a piece of grass that they haven't really been impacting the way they should and holding them off of the places where they might tend to go. So like today, the wind is coming out of the south, so all of the cows would be on the south fence line and they would just be bundled up there fighting flies. Well, what we'll do is we'll go out there in the morning once we know that they're starting to get bundled up, and we'll just haze them out into the draw and remind them to go graze and to give that piece of land a break. And it's just phenomenal the difference that you see…You don't see overgrazing as much or at all. You don't see soil erosion because of overgrazing. And you don't start to see all of these undesirable plants come in the next year, simply because we took the time to be aware and thoughtful about it. (LERw1)

Her reflection demonstrates how mindful, hands-on grazing management can regenerate the land, showing that ecological health depends on close observation and active care. One Navajo rancher described her success in **keeping updated on and meeting burdensome regulatory requirements**, sharing, “And I know that we're growing food and products, so there's United States rules. There's regulations that we have to meet the requirements of the food, the United States food requirements, that it's safe. So I would say that's a great accomplishment.” (LERw2) Together, these reflections show how gaining and applying practical knowledge enables women ranchers to navigate complex systems, sustain their operations, and strengthen the health of their lands and communities.

4.3.5 Personal growth, relationships and support

Two of the ten participant co-researchers named forms of success rooted in their own personal growth, relationships and support they’ve offered to others. Two women described **supporting someone else’s dream to ranch** as one of the successes they are very proud of. For example, after inheriting her late father’s ranch with little experience, she received a note from a man offering to help restore it. They soon partnered, with him managing the labor and her handling the business side and reflecting on their progress she shared:

> My success is seeing [him] living his dream. That really, to me, is to see how proud he is about the pivot on his side and he's planting or cutting crops. And he's fulfilling his dream. That for me is a success. (LERw10)

One woman, spoke about **balancing work, school, and ranching** as a major success of theirs. These examples highlight the deep relationships that make up the foundation of their ranching operations. Success here is not only about one’s own achievements, but about lifting each other up others, sustaining kinship and embodying collective care.

4.4 Perspectives on LandPKS and Adaptive Rangeland Management Workshops

During our shared pláticas, I showed a short demonstration video of the LandPKS mobile app (USDA-ARS, 2020) and briefly explained that the LandPKS app is a free decision-support tool designed to assist farmers, ranchers, and land stewards rapidly identify soils, monitor vegetation and forage utilization, track soil health, and document land stewardship practices over time by integrating first-hand field observations with climate and soil data. Due to time limitations during some pláticas, not all of the women viewed the LandPKS demo video and were then asked a related set of questions. These participants were asked about their interest in using the app to support rangeland stewardship and adaptive rangeland management. These questions focused on whether they would consider using LandPKS as a decision support tool, and how it could be adapted to meet their information needs.

Participants were also asked if they, and others in their ranching communities, would be interested in attending virtual or in-person workshops (with COVID-19 safety protocols in place) that would include hands-on LandPKS app training alongside related topics such as adaptive rangeland management, drought planning, managing for wildlife, and potentially other areas of interest such as succession planning. Follow-up questions explored what workshop format and timing would work best, whether they preferred completing short pre-learning activities or learning in real time, what topics they would find most useful, and what kinds of interactive activities they would most value. Participants were also asked how the workshops could be made more culturally relevant and accessible to their communities. (See Appendix C: Revised Plática Protocol for the full list of questions).

Their responses provided valuable insight into women ranchers' perspectives on technology, learning, and accessibility in conservation training programs. One main theme and several interrelated subthemes emerged from these findings:

4.4.1 Participant perspectives and recommendations on LandPKS and workshops; including interest in using or learning more about the LandPKS app, learning preferences, learning priorities, digital access and connectivity, and data ownership, trust and Indigenous data sovereignty.

The following subsection explores this main theme and it's subthemes in greater depth, highlighting participants' perspectives how on technology, training and digital access can support community-based, culturally grounded approaches to rangeland management.

4.4.1 Participant experiences and recommendations for the LandPKS mobile app and proposed workshops

Five of the ten participant co-researchers were shown the LandPKS demo video and then asked the related questions to this topic area. As a result, the findings summarized here reflect the perspectives of those five women who were able to engage with the demo, and who I shared my brief explanation of the app afterwards and asked them the series of relevant questions that they then shared their insights on. Their reflections highlight how openness to technology, learning preferences, priorities, digital access and trust intersect in shaping adoption and participation. Together, these insights provide a nuanced view of how conservation innovations like LandPKS can be most accessible, relevant and grounded in community needs and knowledge systems.

All five of the women expressed **interest in using or learning more about the LandPKS app**. One Navajo rancher described the app as a valuable innovation that could strengthen both conservation and data driven decision-making. She explained:

> Just viewing the short portion of the video... It's going to provide a rancher or farmer a lot of data that is needed. I would say I would greatly benefit from this technology, this device, because I think today we're getting to that world. The technology is going on now…So, something like this would be really helpful. So, I would say it is needed. Yeah, I would like to invest...And start with this project to maybe be a model, a pilot project from other neighboring [ranchers]. I don't know if the Navajo Nation is already investing in something like this, but this is the first time I've heard something like this, but it could be a pilot project and I would be interested to know. (LERw2)

Several participants had already begun exploring the tool on their own, possibly due in part to having seen the section of the plática protocol that referenced the tool, which I shared with them prior to our scheduled plática. One Hispanic rancher shared, "Absolutely, I do. Yeah. My phone is full of apps. So that would be something." (LERw10) Another Hispanic/Latina rancher shared:

> I'm open to technology. There's always, you know, even if it's one thing out of a series thing that an app or a program can provide, then it's worth it…I'll download the app now. There seems like there might be aspects to it that might be really interesting and I'd rather have access to it and have it, and when you're out there and you just wonder something you know, yeah. I would download it. (LERw11)

Together these perspectives reflect a willingness to integrate new tools like LandPKS, while emphasizing the importance of usability, and hands-on learning.

All five of the women ranchers also shared thoughtful feedback on their **learning preferences** for how LandPKS training workshops could be structured in ways that fit their lives and learning styles. Some suggested evenings or winter sessions when ranch work slows down. A few suggested once a week workshops. As well, many participants preferred shorter, more frequent sessions, as one Chicana rancher shared, "One hour. Yeah, two hours is a lot. I had a two-hour meeting online last night…it's hard." (LERw7)

The women also shared their preferred learning style. One Lakota rancher shared, “I'm not the techiest person in the world, but if you show me something once I'm good to go” (LERw6). Others shared a preference for learning together during the workshops rather than doing homework beforehand. The women also shared that they value practical demonstrations, flexibility, and peer exchange. These reflections show that accessible, discussion-based workshops, that combine short lessons with hands-on demonstrations and flexible scheduling would best meet their needs.

All five of the women, also described clear **learning priorities** for what they hoped to learn from future LandPKS workshops. Water, drought, and soil were top concerns. One Navajo rancher explained:

> The main important is the water and the weather. I don't know what the weather would be. The weather, when is the precipitation that's coming out and then how far is the water table? Because we need to drill some more water, to do water development. So, I say water and then maybe soil and then maybe cultural resources. You have to preserve that. (LERw2)

Succession planning and adaptive management were also emphasized as vital learning areas. For example, one Chicana rancher shared:

> I'm really open because I don't know too much about range management. So, all information would be really helpful to me at this point and the succession planning really perked me. I heard that, too, which that's something that we're talking about in my families, how to do that in a good way so we're all on the same page and so we're continuing in a good way. But to use a large tract of land, so just trying to figure out how to manage it well. (LERw7)

Together their responses show that participants viewed LandPKS as a tool to support water management, drought resilience, and long term planning, while also valuing mentorship and peer learning to apply new knowledge effectively.

Three of the women elaborated on **digital access and connectivity** as it related to the LandPKS app and workshops. Several described internet access as a major barrier, with a Navajo

rancher explaining, “We would love to do that, but the only thing is the internet services…most of the time I use my Verizon hotspot, but the response is very sketchy or maybe we just get cut off. So, the internet is the problem.” (LERw2) She also described how local institutions, like Tribal community chapter buildings could help bridge this gap, stating, “Well, just any time when this virus [COVID-19] leaves, we do have chapters. We have community chapters. It's in local government. They provide services that have internet accessibility. I think they will be a source to provide us the facility to do some online presentation” (LERw2). Other participants noted improvements in their regions, like a Lakota rancher who shared that fiber optic had recently been installed, and that it has been a lot better. These differences reflect ongoing inequities in rural digital access. Participants suggested that in-person hubs like chapter houses, Tribal centers, and local extension offices could serve as gathering spaces for future LandPKS workshops. They also noted the importance of visual materials and language interpretation for producers who prefer or need to learn in a Native languages.

Two of the women raised deeper questions about **data ownership, trust and Indigenous data sovereignty**, which refers to the right of Indigenous peoples to govern the collection, ownership, and application of data about their peoples, lands, and resources (Kukutai & Taylor, 2016) . One Chicana rancher described her skepticism about data ownership, stating:

> I will admit I'm a little paranoid. So, I was wondering who funded it [LandPKS mobile app], and what’s the information because it's online. Like who has access to it and why they might be wanting to have all that information. At times, I can be a little bit skeptical of New Mexico State [University] just because they have a tendency towards supporting like GE-stuff and big agriculture. But I see how it could be helpful. (LERw7)

It is important to note that LandPKS does not require users to share data about their land. Users can opt out of data sharing within the app. Nonetheless, her reflection captures a broader theme of cautious engagement. Participants wanted to ensure that data collected through LandPKS

would remain under the control of producers and communities rather that external entities. They emphasized transparency about funding sources and data sharing and underscoring the importance of Indigenous data sovereignty and local governance would be essential for trust and participation. In sum, these reflections highlight that openness to innovation is not the same as unconditional acceptance. Women ranchers were clear that for tools like LandPKS to be relevant and trustworthy, they must reflect their realities, uphold Indigenous data sovereignty, and be embedded in culturally grounded and accessible forms of learning

Overall, the women saw strong potential in LandPKS if it was easy to learn, relevant to their work, and grounded in relationships of trust. They would attend LandPKS workshops that were short, seasonal, and interactive, combining demonstrations with adaptive rangeland management and local examples. Priority topics included water, drought, adaptive rangeland management, succession and wildlife stewardship. Across all responses, participants emphasized equitable access, community-based learning, and transparency in how digital tools collect, store, and share data.

5. Discussion

This research critically explores and centers the lived experiences, goals and motivations, challenges, strategies to overcome those challenges, and successes of Lakota, Navajo, Hispana, Latina y Chicana multigenerational women ranchers across the western bioregion of Turtle Island. Using Chicana Feminist, Indigenous Feminist and intersectional theory, this study helps to fill the gap of rangeland social science research to-date which has historically relied heavily on positivist, quantitative research methods and largely centered white, male ranching narratives and experiences (Bruno et al., 2020). It is true that more recently, women ranchers have been starting to be centered, but it has been white, women ranchers, further marginalizing Native,

Black and women of color ranchers including Latina, Chicana and Hispana women ranchers all together (Bruno et al., 2020; Wilmer & Fernández-Giménez, 2016).

The findings of this study show that ranching for these women is not simply a livelihood, or a means to an end, but a cultural, ecological and spiritual practice and lifeway. Ranching is rooted in responsibilities to their ancestors, community, family, land, more-than-human kin and their future generations. This understanding aligns with broader work on pastoralist identities in various parts of the world, which also highlight how herding is tied to care, culture, relational responsibility, and identity rather than solely economic production (Fernández-Giménez & Wilmer, 2024). Scholarship on Mongolian herder women, for example, similarly shows how herding is intertwined with mothering, care, and the reproduction of cultural and ecological knowledge (Fernández-Giménez et al., 2024). While uplifting long-practiced Indigenous epistemologies rooted in care and interdependence, this work affirms that the Indigenous women in this study are not simply managing land. They are practicing ancestral and spiritual lifeways, cultural reclamation, and rematriation (Simpson, 2014; TallBear, 2013; Whyte, 2017; Wilson, 2020). The Hispanic, Chicana, and Latina participant co-researchers also described culturally rooted relationships to land shaped by their own family histories, mixed Indigenous and settler-colonial lineages, and regional traditions of land stewardship.

Across all of the women's diverse experiences, their primary goals and motivations emphasize intergenerational care, cultural continuance, ecological reciprocity, and Indigenous food-systems sovereignty, resonating with relational, place-based approaches discussed in Indigenous feminist and Indigenous environmental scholarship (Simpson, 2014; Whyte, 2016; Wilson, 2020). The women's stories also show how ranching can serve as a form of feminist-liberatory practice, rooted in care, responsibility, and resistance to colonialism, racial capitalism,

and the agricultural-industrial complex. They center relationships with land, animals, and community. They work to keep cultural knowledge alive.

At the same time, the majority of the women continue to engage with dominant market systems because these are the primary economic structures available in their regions. Some sell their animals through established livestock markets. Others use smaller scale or direct channels when possible, such as local buyers or selling their value-added products online. These pathways reflect regional constraints and the limited market choices many rural producers face. They show how women navigate economic systems shaped by colonial and capitalist pressures while working to honor their values of care, continuity, and responsibility.

Their goals and motivations are interconnected and reflect a broader political and ethical commitment to land, community, and future generations. Their aims to resist industrial agriculture, heal intergenerational trauma, reclaim Indigenous food sovereignty, and strengthen women's leadership in ranching align with Indigenous and Chicana feminist, liberatory, and emancipatory frameworks. In critical feminist and decolonial scholarship, these frameworks describe efforts to confront cisheteropatriarchal, colonial and capitalist systems, to heal intergenerational trauma and to build futures rooted in justice, care, and self-determination (hooks, 2000; Lugones, 2010).

The challenges identified in this study reveal how race, gender, class and colonial histories intersect to shape women rancher's access to land, credit, markets and institutional support, and these intersections are central to understanding the challenges they described (Crenshaw, 1991). The women in this study described layered barriers including institutional and regulatory constraints, climate change, economic instability linked to racial capitalism and the agricultural-industrial complex, inequities in government programs that are supposed to support

all ranchers, intergenerational grief, and family and cultural pressures. These experiences reflect structural inequities embedded in agricultural policy and rancher-related programming including government and University Extension programs. These programs which are often designed within white, Euro-American frameworks tend to overlook Indigenous and culturally grounded approaches to ranching that prioritize relational, community-based and ecological forms of stewardship. However, these policy and program frameworks do not reflect the full range of motivations held by many ranchers. Rangeland social science has shown that many white, Euro-American ranchers are also guided by noneconomic motivations such as heritage, identity, and care for land, and that profit is only one part of why they continue ranching (Bruno et al., 2020; Fernández-Giménez & Wilmer, 2024; Gentner & Tanaka, 2002; Smith & Martin, 1972; Wilmer et al., 2019; Wilmer & Fernández-Giménez, 2016). The distinction for the women in this study lies in their historical contexts, including the relationships and knowledges that come from these, the ongoing effects of settler colonialism, and the structural barriers that shape their access to land, resources, credit, and institutional support. Dominant rangeland policy and program frameworks continue to privilege large-scale, capital-intensive operations while marginalizing smaller, family-based and culturally rooted ranching operations. These patterns reproduce inequities rooted in settler colonialism, racial capitalism, and patriarchal land policies that continue to shape material conditions today (Glenn, 2015; Pulido, 2016).

Yet, despite these compounding challenges the women in this study continue to ranch, teach, support their communities, steward land, and sustain their traditional foodways. They do so through resistance and adaptation, as their families and communities have always done (Kirmayer et al., 2011). By drawing on culturally grounded strategies, intergenerational wisdom,

and ancestral teachings, they maintain their operations and uphold the wellbeing of their communities (Kimmerer, 2013; Kirmayer et al., 2011).

The women's reflections on LandPKS further illustrate that agricultural technology adoption cannot be reduced to technical decision-making. Their responses reveal patterns that both align with and challenge Roger's predictions about how and why innovations spread (Rogers, 2003). Several women recognized the advantages of the LandPKS mobile app for monitoring soils, forage, and assessing wildlife habitat. These experiences align with Rogers' emphasis on clear relative advantage, trialability, and observable results. However, a few of the women also questioned the compatibility of the tool with their cultural values, land ethics, and daily practices. They noted that usefulness alone is not enough. An innovation must fit within their responsibilities to land, community, and family. Rogers notes compatibility as a key factor, but the women show that compatibility is shaped by cultural identity, sovereignty, and collective history, not only by individual preference.

Their critiques also highlight the role of structural barriers that Rogers treats as less central. The women identified unreliable internet access, limited training, and uncertainty about who controls the data as primary concerns. These critiques reflect long-standing mistrust of external institutions (David-Chavez & Gavin, 2018; Wilmer & Fernández-Giménez, 2016). Such concerns show that adoption decisions are also shaped by legacies of extractive research, uneven access to infrastructure, and unequal power relations. These conditions fall outside of Rogers' focus on interpersonal networks and communication channels, yet they are decisive for a number of the participant co-researchers.

An intersectional feminist approach adds needed depth to this examination on adoption of innovation by showing how race, gender, class, and colonial histories shape the conditions of

adoption. This approach reveals with added clarity why innovations are taken up, resisted, reinterpreted, or not given much value at all. An intersectional feminist approach also shifts analysis away from solely individual attributes, towards a more comprehensive understanding of the structural and relational aspects that influence adoption. In this study, the women emphasized the importance of trustworthy social networks, relational mentorship and community-based learning. This aligns with Rogers' emphasis on social systems, yet the women highlight that these networks are not neutral, they are shaped by shared histories, responsibilities, and ongoing struggles for land, autonomy, and recognition.

Concerns about data control illustrate another divergence from Rogers' theory of innovation adoption. The women's reflections highlight that innovations must be evaluated for cultural relevance, accessibility, and value alignment. They also underscore the importance of Indigenous data sovereignty and governance, which emphasize that Indigenous peoples should control the collection, ownership, access and use of data about their lands and communities (Kukutai and Taylor, 2016). These frameworks assert that data are not neutral but are extensions of Indigenous self-determination, sovereignty, and relational responsibilities to land and community. They show why ease of use and observable results are not enough for acceptance. If a tool does not protect relationships, knowledge, and governance, its technical function becomes secondary.

Recognizing this means that any innovation must be designed and implemented in ways that honor Indigenous governance, knowledge protection, and collective consent (Blackwater et al., 2023; Carroll et al., 2020). Without these principles, even well-intentioned technologies risk reproducing extractive patterns of knowledge collection and control that have historically

marginalized and harmed Indigenous communities and communities of color (Carroll et al., 2020; David-Chavez & Gavin, 2018).

The women also proposed solutions, such as bilingual workshops, relational mentorship, and grounding training in drought planning, succession planning, financial planning, and youth education. Such ideas shift innovation from top-down to co-design processes rooted in community priorities (Cleveland & Soleri, 2007; Pigford et al., 2017). By insisting that technologies and innovations align with their values or reciprocity, intergenerational continuity, and Indigenous data sovereignty, the women show that innovation is meaningful only when it strengthens relationships and responsibilities rather than undermining them.

Their reflections reveal a thoughtful balance of caution and possibility. They approach new ideas with the same persistence, discernment and cultural grounding that guide their everyday ranching and land stewardship practices. Collectively, their stories of persistence, entrepreneurship, stewardship, knowledge-sharing, relationship-building, and thoughtful engagement with innovation illustrate a holistic vision of success strengthens intergenerational continuities and affirms their leadership as vital to the survival and flourishing of land-based communities.

Furthermore, the findings of this study highlight that their successes are not defined solely by western and capitalist metrics of profit or scale, but rather by cultural integrity, land and animal health, relationality and continuing on. This perspective connects to broader Indigenous and feminist critiques of colonialist, western understandings/framings of agricultural success (Gazing Wolf, 2024, 2025).

This study also demonstrates the methodological significance of pláticas as a Chicana and Indigenous feminist method. Pláticas created spaces of shared reciprocity, vulnerability, and

healing, affirming research as ceremony; a process rooted in relationship, respect and responsibility rather than extraction and objectivity (Calderon, 2014; Smith, 2021; Wilson, 2020). In this sense, each plática was not only an exchange of knowledge, but also an act of care and collective meaning-making built on trust. It felt like a ceremony because it honored the stories, the land, and the relationships that made this work possible.

Several participant co-researchers shared that they are rarely asked about their experiences and perspectives and that having a culturally grounded and trusted space to share their stories inspired them to also share them with their families and children. Hearing this was deeply meaningful to me. Even after striving to be intentional, reciprocal, and grounded in transparency, accountability and collective care from the beginning of outreach through the end of our shared pláticas, I still wondered whether participant co-researcher felt their time, stories and knowledge had been truly respected and valued. Their reflections affirmed that this work was not only worthwhile, but also healing for all of us, reminding me that relational research is itself an act of care, reciprocity, and transformation.

6. Limitations

While this study centers the experiences, knowledge, expertise, leadership and contributions of Lakota, Navajo, Chicana, Latina, and Hispana women ranchers, it does not include the voices of Black ranchers, or other Indigenous ranchers, including Afro-Indigenous ranchers, and ranchers of color from other Nations and communities not represented here. These absences reflect the time and resource constraints of a master's program, rather than lack of effort. During the outreach process, I actively sought to connect with Afro-Indigenous and Black ranchers, as well as Black-led and Indigenous ranching organizations. However, due to limited time and the relational nature of building trust for pláticas, these connections did not culminate

with pláticas within the study period.

The USDA-NRCS Conservation Innovation Grant that supported this study did not include funding for participant co-researcher honorariums or stipends. While I will be taking steps to reciprocate participants' generosity through other means, such as personal thank-you packages and native seed gifts, the lack of formal compensation likely limited participation access and interest from some potential participant co-researchers. This structural limitation highlights the importance of ensuring future research budgets include generous funding to honor participants' gifts of time, expertise, and the emotional and relational commitment they bring as co-researchers in studies like this.

This study was also shaped by the context of the COVID-19 pandemic, which coincided with the period of outreach and data collection. Pandemic restrictions prevented me from meeting participant co-researchers in person for more in-depth relationship building and sharing. As a result, all pláticas were conducted by phone or video call. While this approach supported safety and accessibility, it limited opportunities for embodied, land-based, and communal forms of engagement that are often central to Chicana and Indigenous feminist research methodologies.

This study may also not fully reflect the perspectives of queer or disabled ranchers, as participants did not self-identify in these ways during their pláticas. These perspectives are equally vital to understanding how cultural background, gender, sexuality, ability and other intersecting lived experiences and situated knowledges shape rancher goals and motivations, challenges, successes, strategies to overcome those challenges and approaches to innovation within U.S. rangeland science.

My positionality as a Chicana feminist researcher, while grounding this work in shared cultural and political commitments, also shaped my lens. I do not come from the cultural, socio-

political or historical backgrounds of all the participants in this study. I recognize this influenced how I interpreted and prioritized themes within and across participant pláticas. I worked to account for this through continuous reflexivity, community-based discussions with my graduate peers from diverse Native Nations and communities, and consultation with my graduate advisors. These practices helped me remain accountable and transparent throughout the research process. I chose to move forward with outreach across Indigenous, Black and people of color-led agricultural and conservation organizations and networks to amplify the broader collective of communities and Indigenous Nations historically excluded from U.S. rangeland science. I look forward to the continued leadership of scholars from these rich and diverse Nations and cultural communities who are reclaiming space and shaping this field in transformative ways.

Future research led by scholars and community members from these Nations and communities is needed to provide more balanced representation and to address existing biases in U.S. rangeland science by centering Indigenous and Afro-Indigenous ranchers, Black ranchers, and other ranchers of color, especially women. This includes exploring intergenerational mentorship, youth engagement and collaborative approaches to rangeland stewardship and innovation design. Such work is essential to advancing more equitable research, policy, decision-making, and program development that support all ranchers, uphold Indigenous sovereignty and Indigenous food systems sovereignty, and contribute to more just rangeland stewardship futures.

7. Conclusion

This study calls for a redirection of rangeland social science, to think about who is recognized as a decision-maker, as a rancher, whose knowledge is valued and what futures are imagined for the continued caretaking of rangelands and the communities, cultures and foodways that depend on them. Indigenous women ranchers are not marginal participants, they have

always been the central knowledge-holders, land caretakers and innovators across these lands since time immemorial.

Furthermore, the findings affirm the ranching practices of Indigenous women ranchers and women of color ranchers as feminist-liberatory acts of care, resistance, and cultural continuity. The women in this study are visionaries who are reshaping systems that were not built for them so they can better serve their communities, lifeways, and future generations. Their work in buffalo rematriation, culturally grounded mentorship, and Indigenous food-systems sovereignty demonstrates that meaningful innovation grows from collective knowledge, relationships, and lived experience rather than from technology alone.

Because Indigenous women ranchers and women of color ranchers are already leading innovative, relational, and place-based approaches to land stewardship, effective policy must be grounded in their lived realities and leadership. Yet agencies such as the Farm Service Agency (FSA), USDA, NRCS, and the Bureau of Land Management continue to operate within settler colonial systems that have historically harmed Native Nations, Native communities, and communities of color through land dispossession, discriminatory practices, and exclusion from decision-making (Estes, 2019; Wolfe, 2006). These agencies manage and benefit from lands stolen from Native Nations and control vast portions of the western United States, while often failing to support Indigenous governance, land return, or equitable access to programs and resources (Akee, 2021; Daniel, 2013; Vincent & Hanson, 2020). Decades of Indigenous leadership and scholarship have demonstrated that many co-management models fall short of true power sharing and continue to constrain Indigenous authority over land and decision making, particularly within federal land management agencies (Necefer, 2022). These patterns reflect ongoing structures of dispossession rooted in federal land policy and allotment, which

fractured Indigenous land tenure, governance, and kinship systems (Legacies of Allotment and Indigenous Resistance, n.d.).

Within this context, these agencies can strengthen their missions by moving beyond narrow economic and settler-colonial metrics commonly applied to ranching, such as acres enrolled, stocking rates, short term forage and production targets, or revenue alone. These measures often fail to capture relational, cultural and long-term stewardship outcomes. Instead, agencies can support Native-women and women of color-led initiatives grounded in community priorities and self-determination (Simpson, 2020). This includes support of Traditional Ecological Knowledge transmission, intergenerational land stewardship, buffalo rematriation, cooperative grazing and land management, community-based meat processing, youth focused ranching pathways, long-term relationship based Extension support, and true Indigenous led co-management and co-stewardship that centers tribal authority and decision-making (Cajete, 1994; Legacies of Allotment and Indigenous Resistance, n.d.; Necefer, 2022). At the same time, the women in this study emphasized that economic stability is not separate from these goals but foundational to them. A ranch must remain financially viable in order to support cultural, ecological, and community commitments over time. When financial stability is undermined by a history of stolen land and wealth, discriminatory lending, and ongoing land loss, long-term goals such as passing land to the next generation become far more difficult to achieve, underscoring the long overdue obligation of these agencies to provide equitable and accessible financial support.

In addition, conservation and agricultural organizations and University Extension programs have benefited from histories of stolen Native land and wealth and therefore have a long overdue obligation to provide equitable and accessible financial support (Ahtone et al.,

2024; Akee, 2021; Estes, 2019; Wolfe, 2006). They would also benefit from shifting away from top-down approaches and toward supporting community driven, Native-women rancher and women of color rancher-led, women-centered cohort models that are already thriving across Turtle Island. Many women in this study shared they did not have women mentors from their cultural communities outside of their immediate family members. This gap reflects the long-term impacts of colonization, which disrupted kinship networks and limited opportunities for shared learning across generations (Simpson, 2020). The women emphasized that learning happens through relationships and shared experience. A cohort-based approach, that lasts at least one year, and ideally spans multiple seasons or years, would support rebuilding these networks. An intergenerational cohort model, with intentional inclusion of youth as many of the women recommended, would bring ranchers from shared and related cultural communities and Tribal Nations together over time to build trust, share knowledge and strategies, and develop skills in ways that reflect their cultural and community priorities. This approach would strengthen continuity, deepen peer networks, and offer a more effective path for Extension to support Native women ranchers, women of color ranchers, and their communities.

Commitment to long-term relationship building was also central to this study's methods and reflects the same relational values described throughout this thesis. Toward the end of each plática, we discussed future opportunities for coming together with the other women who participated in this study. Nearly all expressed great enthusiasm, sharing how meaningful it would be to connect with other women ranchers from similar cultural backgrounds, since many do not have peers or mentors outside of their immediate families due to the demands of ranching and the isolating realities of rural life. When I shared that the gathering could also be a space to imagine what else might grow from their contributions, several women suggested creating

informational pamphlets and a video montage to highlight their leadership and lived experiences in ranching. They envisioned these resources as tools they could share with the youth in their communities, inspiring future generations to see themselves continuing this work. Although I have not yet been able to organize this gathering, the interest expressed by the women points to clear pathways for future work. I plan to seek funding to support this effort. If funding becomes available, I will ensure that the gathering is co-designed with the women and reflects their priorities and goals.

Ultimately, this thesis contributes to U.S. rangeland social science research while honoring the voices, wisdom, and lived experiences of the women who shared their stories. The findings and the research process challenge epistemological injustices within U.S. rangeland social science and affirm that this research can be healing and transformative. By centering Lakota, Navajo, Chicana, Latina, and Hispanic women ranchers' voices, this work reimagines rangeland stewardship futures grounded in justice, relationship, and Indigenous sovereignty. Ranching as these women described, is not only a livelihood and means of production. It is a way of life, a commitment to ancestors, and a responsibility to care for their communities, future generations, Mother Earth, and all their relations. It is an act of persistence, cultural continuity, and love for the land. Their leadership and intergenerational knowledge expand what counts as expertise in rangeland research and practice, showing that sustainability is inseparable from Indigenous sovereignty, care, and kinship. This thesis envisions a future of U.S. rangeland science and stewardship that centers, learns from, is led by, and stands accountable to the Indigenous women, Black women and women of color ranchers and land stewards whose knowledge, leadership, and care continue to sustain these lands and lifeways.

8. Conflict of Interest Statement

The author declares no personal or financial conflicts of interest. This research was supported in part by the USDA-NRCS through a Conservation Innovation Grant in partnership with The Nature Conservancy in Colorado, Bird Conservancy of the Rockies, Colorado State University, University of Colorado, and the USDA-ARS Range Management Research Unit.

Rhythm of the Seasons on El Rancho

Hard to put into words
The rhythm of the seasons
The connection to the seasons

Always paying attention to
When it snows
How much it snows
How much snow is on the mountain

Goin' to be enough water? Time to go hunting?
Will the elk be
up here because it snowed?
down here because it snowed?
Or
up high in the mountain?

Good year of piñon?
Bad year of piñon?
We gathered piñon
Gathered, that's the word my grandparents used
"It's time to gather piñon"
Buckets
Takes hours to gather buckets
Of piñon
Some would sell them.

We sold firewood.

Also
Is it a good year of chokecherries?
Bad year of chokecherries?
It's a good year--
That means next year is goin to be a bad year
So,
You've got to pick enough chokecherries to last two years!

This poem is a poetic analysis created from a plática I shared with Dr. Shannon Archibeque-Engle during an early qualitative research course project. It draws from her reflections on growing up with her family and on her family's ranch and is included here with her permission.

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APPENDIX A: NETWORKS AND ORGANIZATIONS CONTACTED DURING PARTICIPANT OUTREACH

Black, Indigenous and People of Color (BIPOC)-led Nonprofit Organizations

- Black Farmers and Ranchers New Mexico
- First Nations Development Institute
- Intertribal Agriculture Council
- Latino Outdoors
- National Latino Farmers and Ranchers Trade Association
- Trees, Water, People

Non-BIPOC-led Nonprofit Organizations

- Colorado Open Lands
- Quivira Coalition
- Santa Lucia Conservancy
- Women in Ranching

Federal Agencies

- Natural Resource Conservation Service
    - Rangeland Specialist in Southern Colorado
    - State Conservationist in New Mexico
- U.S. Forest Service
    - Rangeland Management Specialist in New Mexico
    - District Ranger in New Mexico

University and Academic Contacts

- Colorado State University
    - Ethnic Studies Professor
    - Indian and Environmental Law Professor
    - CSU Extension - Latinx Outreach and Engagement Specialist
- Arizona State University

    - Graduate Student, Range Ecology and Indigenous Communities

- Stanford University
    - Associate Director for Environmental Education

APPENDIX B: ORIGINAL PLÁTICA PROTOCOL

Introduction

Hello, my name is Ariana Gloria-Martinez. I'm a graduate student at Colorado State University. I am working on a research project about the experiences of ranchers, especially Hispanx/Latinx/Chicanx and Indigenous ranchers and women in ranching. I'm interested in ranchers' experiences, connection to the land, and how you make management decisions.

You have been asked to participate in this interview to share your experiences in the extensive livestock industry. I will be asking you to tell me the story of your life, how you got into ranching, and what this way of life means to you. Our conversation will take about an hour.

Before we begin, would it be okay if I voice record our discussion? This ensures greater accuracy in the data. Do you have any questions before we begin?

Sample Questions [The life history interview ideally will be more of a free-flowing narrative than a structured Q&A. Questions here may be used to prompt the participant, but not all questions will be asked of all participants.]

Part 1: Lived experiences in ranching

1) First, I'd like to hear about your childhood and your pathway into ranching.
    a) Could you please tell me about your life growing up?
    b) What interested you/propelled you to get into ranching?
    c) How would you describe your connection to the land?
    d) How about your connection to the animals you raise?
2) Now, could you tell me about your work and your role on the ranch?
    a) How would you describe your work and your role in the ranching operation?
    b) How did you learn how to ranch and/or farm?
    c) Who have you relied on for support in ranching?
    d) Who have you relied on for mentorship in ranching?
    e) What networks, organizations and/or service providers have you looked to for support and or mentorship?
    f) What programs, services and assistance would you like, or do you need to support you in achieving your goals?
3) I'm interested to hear about your successes or accomplishments in ranching. What are the biggest successes or accomplishments you have had in ranching?
    a) Prompts re: adoption of innovations, changes in management
    b) Prompts re: financial, social, cultural or other success
    c) Prompts re: success related to gender or ethnic identities

d) How have your experiences as an Indigenous woman/man, or woman/man of color influenced those successes?

4) I'm curious what have been the biggest barriers or challenges you have experienced as a rancher. What are the biggest barriers or challenges you have faced in ranching?
    a) Prompts re: access to land, capital, information, technical assistance, government programs
    b) Prompts re: adoption of innovations, changes in management
    c) Prompts re: financial, social, cultural or other challenges
    d) Prompts re: challenges related to gender or ethnic identities
    e) How have your experiences as an Indigenous woman/man, or woman/man of color influenced those challenges?
    f) What strategies have you used to resist and overcome these barriers or challenges?
    g) Where or from whom did you learn those strategies?

Part 2: Rangeland management goals, decision-making, and likelihood to adopt new rangeland management technologies

5) Can you tell me about your primary goals for your ranching operation? What are your primary goals of your ranching operation?
    a) Prompts re: financial goals, production goals, cultural goals, ecological goals, social goals
    b) What are your main goals in terms of land stewardship?
    c) What would you say motivates you to pursue these goals?
6) Please tell me about how you make decisions on your ranch. Who participates in decision-making?
    a) On what information do you base your decisions?
    b) What kind of decisions do you make each day? Season? Year?
7) I'd like to hear about the specific range and livestock management practices you use on your ranch. Do you have a ranch or range management plan? (Please tell me about it)
    a) Tell me about any practices you do specifically to conserve soil, plants or wildlife habitat? (Please describe…)
    b) Have you ever used any decision-support tools (e.g. ranch budgeting tools, state and transition models, mobile phone applications, etc.)?
    c) Do you do any type of monitoring on your ranch? For example, range monitoring, livestock monitoring, financial monitoring?
    d) What encouraged you to adopt and use these different practices (conservation practices, decision-support tools, monitoring, etc.)?
    e) What has discouraged you or prevented you from adopting and using other innovations?
    f) What interest do you have in adopting new rangeland management monitoring and decision-support technologies?

[Explain and/or demonstrate LandPKS]

8) How do you think such technologies could be adapted to fit your interests and needs?
9) What rangeland management information or support do you need to better manage your ranch operation and take care of your land?
10) Is there anything else you would like to share with me related to your management goals, decision-making processes and or adoption of rangeland management innovations?

Part 3. Perspectives on Identity and the Future

11) I'd like to know what being a rancher means to you. What is most important to you about being a rancher? Why do you do it?
    a) What do you most enjoy about being a rancher?
    b) What do you least enjoy?
12) What advice would you give to a young person from a background like yours who wants to ranch today?
13) Finally, I'd like to close by asking you about the future. What concerns you most about the future as a rancher?
    a) What do you envision and hope for regarding the future of ranching?
    b) What are the most important problems, issues or practices that rangeland science should focus on to address the needs of ranchers like you today?
14) Is there anything else you would like to share with me about your experiences in ranching?

APPENDIX C: REVISED PLÁTICA PROTOCOL

Introduction

Hello, my name is Ariana Gloria-Martinez. I'm a graduate student at Colorado State University. I am working on a research project about the lived experiences of Indigenous, Latinx, Chicanx and Hispanx ranchers, especially women.

You have been asked to participate in this interview to share your experiences in the range livestock industry. I am interested in your experiences in ranching, your connection to the land (all of its inhabitants and the animals you raise), your management goals and practices, your thoughts on what ranching means to you and your hopes for the future.

Our conversation will take about two hours. So, if you need a break at any time, please do not hesitate to let me know.

(Go through cover letter/consent letter with participant now)

Before we begin, would it be okay if I voice record our discussion? This ensures greater accuracy in the data. Do you have any questions before we begin?

To start I also just want to say that I use She/Her pronouns and identify as Chicana. Please feel free to share with me if you are comfortable, your pronouns and your preferred term in how you identify (racially, ethnically and/or with which Nation or Tribe)

Part 1: Lived experiences in ranching

1) Can you please tell me about your family's history on the land, your life growing up and how you got into ranching (inheritance/family ranched, beginner rancher, marriage, other)?
    a) Additional job outside of ranching
    b) Degree to which their livelihood depends on their ranching income
    c) Year born
    d) Education
2) How did you learn how to ranch, who taught you?
3) Are there any organizations/cooperative extension services/federal agencies/ or other networks you look to for information/educational resources, financial assistance, technical assistance or any other kinds of support? What has been your experience in accessing those resources (good, bad, other)
    a) What programs, services or assistance are most important to you in order to support you in achieving your goals?

4) Great thank you, and what type and scale of operation do you run (what livestock, about how many livestock, about how many acres)? And can you tell me about your role and the work that you do on your ranching operation?
    a) Any particular tasks that only you do?
    b) How does your work vary from season to season?
5) Can you please tell me about your primary goals for your ranching operation and the motivation behind those goals (ecological, financial, production, cultural, family/community)?
6) Can you please describe the key land management practices you do specifically to conserve soil, plants, wildlife habitat, and/or other cultural resources?
    a) Who participates in the decision-making on your operation and how do you make management decisions? What information do you base those decisions on?
    b) What kinds of management decisions do you make day to day/season to season?
    c) And have your practices changed over time and if so why?
    d) Do you do any type of monitoring on your land (if so, can you please describe that for me)?
    e) What encouraged you to adopt and use these different practices?
7) What are the biggest successes or accomplishments you've had as a rancher or in ranching?
    a) Have you been able to successfully accesses resources you have needed/wanted over the years (such as land, capital/credit, information, technical assistance, etc.)?
    b) Do you believe any of the successes and accomplishment you have shared are influenced by your gender and/or racial, ethnic or Indigenous background? And/or shaped by any other life experiences?
8) What challenges have you faced as a rancher or in ranching?
    a) Have you faced any barriers to accessing resources (land, capital/credit, information, technical assistance)?
    b) Do you believe any of those challenges have been shaped by your gender and/or racial, ethnic or Indigenous background? And/or shaped by any other life experiences?

9) What strategies have you used to resist and overcome these barriers or challenges? Who taught you those strategies?
10) And who do you rely on for support in hard times and mentorship in ranching?

Show LandPKS video: https://www.youtube.com/watch?v=ODymv3nWbH0

11) Would you have any interest in using a decision support tool like LandPKS? Why or why not?
    a) How could it be adapted to meet your information needs and interests?

(Explain future workshops focusing on): adaptive management and the role of monitoring along with drought planning, managing for wildlife, succession planning.

12) Would you be interested in attending a virtual workshop like this?
    a) 2 hrs. every other week (2-3 sessions) vs 1 hr. every other week (4 sessions)
    b) What days and times of days would work best for you?
    c) Would you prefer doing pre-work learning (more time for breakout discussions) or learning in real time during the workshop?
    d) Any topics you specifically would like to learn about and discuss?
    e) Interactive part (goal planning/succession planning) any other activity you would prefer?
    f) Do you think your community would be interested in this kind of workshop? How could it be best fit to your communities' interests and needs (i.e. culturally relevant)?
    g) Do you have the resources/internet capability to attend virtually?

Part 3. Perspectives on Identity and the Future

13) Can you please tell me about your connection and relationship with the land, its inhabitants and the animals you raise?
    a) What factors have shaped your relationship you describe (cultural, community, personal experience, intersectional identity-gender, racial/ethnic identity, etc.)
14) Next, I am very interested to know what being a rancher means to you and what is most important to you about being a rancher?
    a) What do you most enjoy about being a rancher?
    b) What do you least enjoy?

15) I use she/her pronouns and identify as a Chicana and I was wondering how you identify? And if your identities have shaped your experiences, goals, motivations or perspectives as a rancher?
16) Are there any stories you learned growing up that taught you how to care for the land, its inhabitants and the animals you raise?
    a) (i.e. parents/grandparents shared any stories with you about how they ranched)
17) Have these stories influence the way you manage or make decisions about your operation?
18) Do you plan to pass on your ranching knowledge? If so, to whom, and how?
    a) And why is passing on your knowledge/way of life important to you? To your community?
19) What advice do you have for young or beginning ranchers, especially Indigenous, and other women of color ranchers?
20) Do you engage in supporting/mentoring others in your ranching community (youth, beginner ranchers)?
21) Next, I'd like to ask you about the future. What concerns you most about the future as a rancher?
22) What do you envision or hope for regarding the future of ranching? And what most excites you about the future of ranching?
23) What are the most important problems, issues or practices that rangeland science should focus on to address the needs of ranchers like you and your community today?
24) Is there anything else you would like to share with me about your experiences in ranching? And do you have any questions for me?
25) Okay great and lastly, do you know of anyone else who might be interested in participating in this study?
26) Mailing address (so I can send you the hard copy of your interview transcripts):

Thank you so much for your time and everything you shared with me today! Your experiences and perspectives are so incredibly important, and I am honored to be able to work with you for this study.

APPENDIX D: USDA-NRCS CONSERVATION INNOVATION GRANT FINAL REPORT

Expanding and Testing the Utility of Land Potential Knowledge System (LandPKS) – an Open-Source Grazing Land Evaluation Tool for Ranchers

Grantee Name: The Nature

Conservancy Project Director: Terri

Schulz

Project End Date: September 30, 2021

Agreement Number:

NR183A750008G010

Project Summary and Impact

Between 2019 and 2021, The Nature Conservancy in Colorado, Bird Conservancy of the Rockies, Colorado State University, University of Colorado, and the USDA-ARS Range Management Research Unit worked in partnership to help ranchers gain access to the tools and information they need to inform land management decisions and be able to adapt their management over time. Funded by a Natural Resources Conservation Service (NRCS) Conservation Innovation Grant, the team:

- Created two new features for the Land Potential Knowledge System (LandPKS) free phone app – Forage Utilization and Wildlife Habitat. LandPKS is free and available for download through Google and Apple platforms, and the expanded functionality automatically updates for existing users.

- Created 125 species information factsheets written for ranchers and other land managers

- Developed a wide variety of outreach materials for different audiences, including training materials and user guides for the modules and app in general.

- Re-designed and updated the LandPKS website to create a searchable "Knowledge Hub" and improve overall usability.

- Reached over 100 ranchers at workshops and webinars, including women, people of color, and folks entering farming and ranching.

- Designed a webinar to meet the interests and needs of 15 indigenous ag interns

- Reached more than 85 service providers including NRCS staff from nine states, and staff from state and federal agencies and nonprofit educational organizations and land trusts.

- Supported a graduate research student to investigate adoption of innovations in agriculture and conservation generally, and rangeland management, focusing especially on women and men who identify as Indigenous, Hispanx, Latinx, or Chicanx

- The project also supported a Rangeland Social Science graduate student at Colorado State University who is finishing up her research.

Creative Outreach During COVID-19

The biggest challenge during this project was the inability to host the planned workshops in the field with ranchers because of COVID-19 safety concerns. The team pivoted quickly during the pandemic shutdown and designed and delivered a wide variety of webinars. We reached a more diverse audience by offering content in different formats and by creating targeted webinars such as one created for the Women in Ranching group.

We were able to participate in two existing workshops. We also created one field-based training and one in-person workshop during 2021 in the San Luis Valley, when safety protocols permitted gathering.

Background/Rationale for the Project

The variability of weather, markets, and other dynamic factors make ranching a challenging enterprise. To survive, ranchers need decision-support tools to do what is best for their land and animals. Access to comprehensive information about land potential allows a rancher to plan how to achieve desired outcomes. Many ranchers do not currently utilize adaptive management process to inform land management decisions. To be successful in a changing world, ranchers must also have tools for easy, meaningful monitoring to adapt over time. By using the free, open-source Land Potential Knowledge System (LandPKS) mobile app, ranchers can rapidly identify soils, as well as inventory and monitor vegetation. LandPKS already provides essential information for ranchers to make management decisions, but the tool is not widely used in the United States. Also, the tool did not assess livestock utilization and other resource values that are essential for managing grazing lands for sustainability in highly variable and changing environments.

Objectives and Innovative Approach

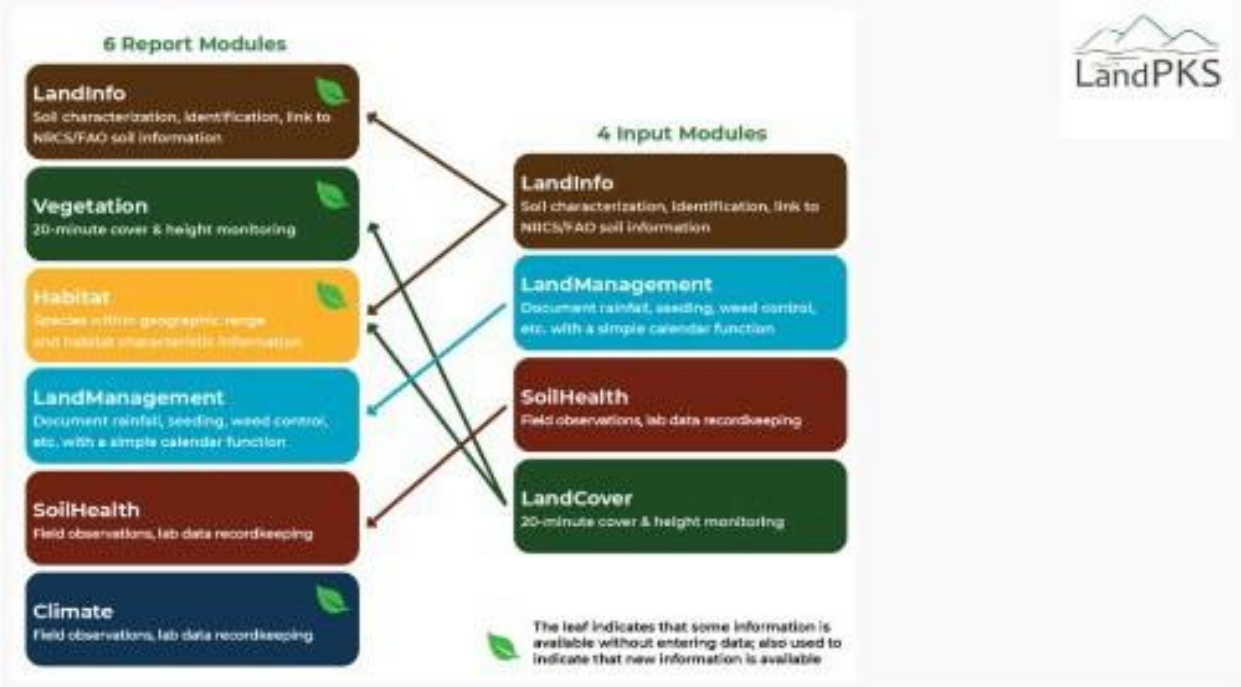
The objectives of the project were to: 1) create two new LandPKS modules to enable ranchers to monitor forage utilization and assess wildlife habitat potential, and 2) engage ranchers in implementing, testing and evaluating LandPKS as a tool for rangeland assessment and management.

The team working on this project included staff from The Nature Conservancy in Colorado, Bird Conservancy of the Rockies, LandPKS staff, Agricultural Research Service, former and current NRCS staff, a Rangeland Social Science Colorado State University professor and a graduate student, and a University of Idaho professor. LandPKS, an innovative tool, offered data collection and access to resources at a resolution and scale never before possible. This tool allows producers to directly link management outcomes to land potential. Adding two modules,

Forage Utilization and Wildlife Habitat, dramatically increases the value of this tool for ranchers. The project directly addresses NRCS CIG Priority Needs by estimating forage production and utilization, and by providing a tool to help producers adapt to and plan for drought. The team also created a wide variety of outreach materials, delivered and participated in workshops and webinars.

Results

The team successfully designed, created content, and launched two new functionalities: Forage Utilization and Wildlife Habitat in LandPKS. Forage Utilization is part of the LandCover input module and Wildlife Habitat is a report module.

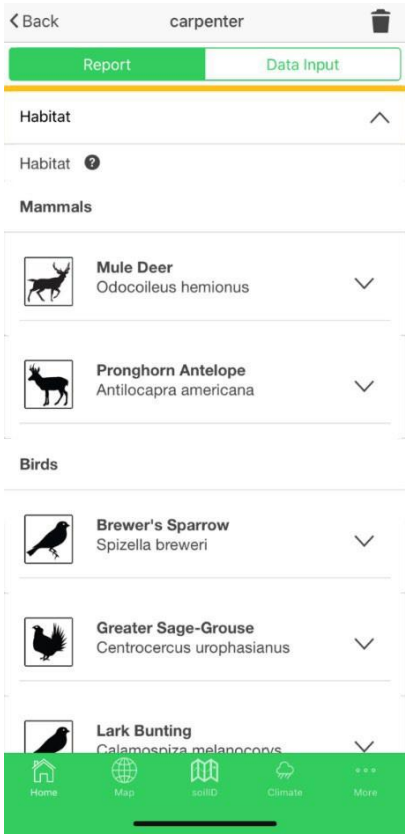


Schematic on how LandPKS modules are related. Note that Habitat is a report module with input from LandInfo and LandCover Input Modules.

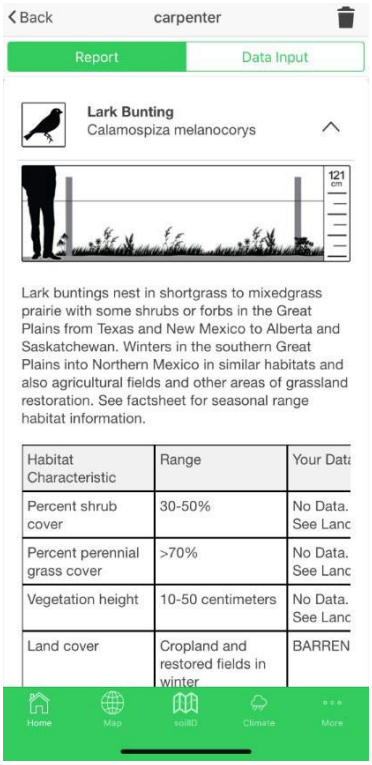
In the Forage Utilization component of the Land Cover module, users have the option to estimate forage vegetation as a whole (Landscape Appearance) or focus on a vegetative species (Key Species). Key species are forage species that serve as an indicator of the grazing use of associated species. Outreach materials were created for the Forage Utilization functions including a webpage where a step-by-step guide can be downloaded. The Forage Utilization module gives ranchers a simple approach for monitoring percent of forage production that is consumed and trampled to inform future livestock stocking rates.

The species considered for inclusion in the Wildlife Habitat module were selected by reviewing state conservation plans and soliciting input from partners across the United States project geography. Species were prioritized and 22 initial species were selected to test in the first launch, with another 103 species added in 2021. Factsheets were created and uploaded to the [LandPKS website.]

The Wildlife Habitat module provides ranchers and other land managers with short summaries of key habitat and species information for 126 species or subspecies and links to species factsheets in both English and Spanish. Habitat information describes how to identify the species, its habitat needs, ways to improve habitat and things to avoid doing that would be detrimental to the species. Unique species icons and landscape graphics designed by the team make the module visually attractive and easy to use. Programming for the new species is complete, and a beta version for the new species is being tested before launching in the app store in early 2022.



Screenshot of Habitat Report Module information



Screenshot of species

Outreach Materials for Ranchers, Land Managers, and Service Providers

Outreach materials in a variety of formats for specific audiences were created to support the use of LandPKS app and website as well as webinars and workshops to assist ranchers with improved management of land. During the grant period, the team gave presentations to agencies, coalitions, networks, and nonprofits on LandPKS, the capabilities of the new modules, and discussed future collaboration opportunities.

Below is a list of the materials created:

LandPKS blog posts

- Introducing the "Habitat module"
- Featuring the 3-Part webinar series: This webinar series targeted rangeland managers and others interested in learning how to use LandPKS and in exploring the app's new Habitat and Soil Health modules in a rangeland management context. Each of the three, 45-minute webinars focused on a different aspect of using LandPKS on rangelands: identifying land potential, monitoring vegetation, understanding habitat, and monitoring soil health.
- Featuring the San Luis training event: Training event in San Luis, Colorado, to introduce local land managers to using LandPKS to access soil and ecological site information that can support management decisions.
- The story behind the "Habitat module": Nature Conservancy and LandPKS staff talk about how the idea for the project came about

LandPKS Knowledge Hub posts

- User Guide for LandPKS (generic)
- User Guide for Rangeland Managers
- Habitat module information: What is habitat, who is the module for, what species are included and information on how to use the information within the app and on the LandPKS website.
- A searchable database of habitat factsheets in English & Spanish: 126 factsheets for 13 amphibians, 56 species of birds, 11 insects, 26 mammals, 8 plants, 11 reptiles, 1 fish (including 7 subspecies). All available in PDF for download as well as from the app.
- Measuring utilization: What, why, where, when, and how? Step-by-step, illustrated instructions for measuring utilization with the LandPKS mobile app.
  Including a downloadable PDF

- Utilization methods: Utilization data can be an effective management tool to evaluate and modify the impact of grazing animals on soil, water, and vegetation resources.

LandPKS Videos (YouTube)

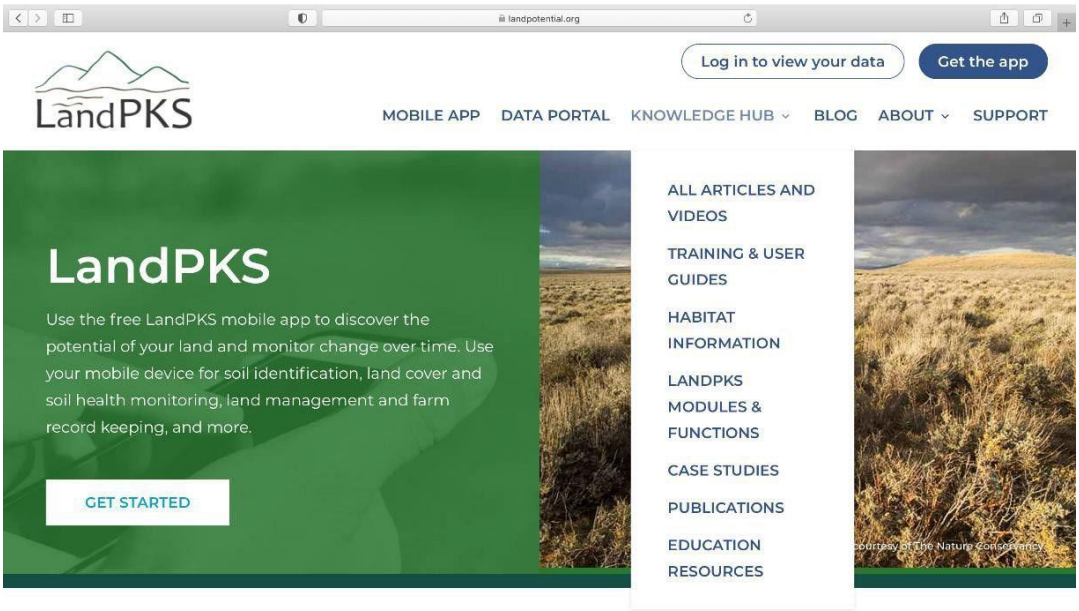
- Introducing the LandPKS Habitat Module: Quick overview of the new module (over 140 views)
- Habitat training video: How-to visualization of how to use the habitat module (over 100 views)
- A conversation about the habitat module: A deep dive into "habitat" with Terri Schulz and Tegan May from The Nature Conservancy (>100 views)

Interactive story map for the Habitat Module. Presented at the Society for Range Management (virtual) 2020. Using the LandPKS Wildlife Habitat Module to improve land resilience and wildlife habitat (>750 views). The team also presented and gave updates at Society for Range Management meetings in 2019, 2020, and 2021 and are scheduled to present on the project in 2022.

Bird Conservancy of the Rockies 2020 Annual Report. Land PKS: Integrating bird habitat relationships into an existing phone application 2020 Stewardship Highlights.

Enhancing LandPKS for Ranchers and Land Managers

During the project period, we adjusted the LandPKS website to be more user-friendly and a re- design was implemented to house the new species factsheets and outreach information. Funds from the grant were used to update the website and create a searchable "Knowledge Hub" and build out the blog post section of the website. Factsheets were uploaded in both English and Spanish and webpages created for each species or subspecies in the new "Knowledge Hub".
Additional content has been added to the website, including the new Utilization module information and a step-by-step guide and blog posts about the project. You can visit https://landpotential.org/ to learn more.



Screenshot of redesigned landpotential.org website

Workshops, Webinars, and COVID-19 Challenges

Workshop and webinar curriculum focused on adaptive management, drought planning, and how to use LandPKS to support ranch planning and decision making. While we believe that meaningful connections with ranchers and agency staff were best accomplished in-person, with rancher to rancher learning opportunities, the COVID-19 pandemic mandated pivoting to online ways to reach ranchers and service providers. Virtual learning opportunities needed to be relevant and time-sensitive, with the content still resonating in a compressed online format. We offered content in different formats, such as live webinars with Q&A, recordings, videos, blog posts, and written materials that allowed for self-paced learning. Recorded webinars and supporting materials will continue to be available on the LandPKS website to serve as a resource for land managers, multiplying the impact of the NRCS funding beyond what we could have done with the originally planned in-person workshops.

In addition to the outreach materials identified above, a list of workshop and webinars provided during the project:

- A workshop focused on using LandPKS for adaptive management and sustainable grazing for ranchers and service providers in the San Luis Valley Colorado.
- A webinar for Bird Conservancy of the Rockies and NRCS staff that work with

ranchers

- A webinar for South Dakota State Extension BeefSD – young rancher program,
- A webinar for Women in Ranching group led by Western Landowners Alliance. A link to the recording is found here.
- 3-Part webinar series for rangeland managers focusing on using LandPKS to identify land potential, monitoring vegetation and understanding habitat, and monitoring soil health.
- An in-person workshop for the Acequias Association in San Luis, Colorado for leaders of the association, NRCS staff, and other NGO staff and consultants. A follow-up presentation, "Grazing on an Acequia: Lessons from Pastoral Systems Around the World" was given at the Congreso de Acequias in the San Luis Valley, Colorado.
- A webinar for the Intertribal Ag Council targeting their members and interns.

In addition to these events, we shared our project materials and outreach information with an additional Tribal organization, First Nation Development Institute.

The pivot to online meant that the project team could offer unique content tailored to a particular groups' needs. To ensure timely, relevant content sensitive to local values and knowledge, the project team met with workshop hosts to plan and co-create each agenda. Results from post-workshop surveys were used to improve the content and boost engagement in the following workshops. It should also be recognized that underserved communities were disproportionately affected by COVID-19 and, therefore, necessitated great sensitivity in our communication and collaboration with them to ensure the webinars and workshops were beneficial to them.

Virtual webinars reached more than 85 service providers including NRCS staff from nine states: Colorado, Nebraska, Oregon, Utah, Nevada, New Mexico, South Dakota, Minnesota, and Wyoming. Extension specialists from Texas, Idaho, and Nebraska also attended. We also had BLM, USFS, ARS, FPAC, state wildlife, natural areas, state land board staff, and other agency personnel attend webinars. Nonprofit educational organizations and land trusts including Quivira Coalition, Bird Conservancy of the Rockies, Pheasants Forever, Colorado Conservation Tillage Association, Altar Valley Conservancy, Rio Grande Headwaters Land Trust, Colorado

Cattleman's Agricultural Land Trust, and The Nature Conservancy have attended webinars.
Lastly, a small contingent from Universities, United Nations, and FAO from South America (Peru and Argentina) and Africa (Uganda, Kenya, Ethiopia, Sudan, Somalia, and Tanzania) have attended.

Social Science Research & Graduate Student

A Colorado State University (CSU) Rangeland Social Science professor and their graduate student assisted with workshop content and delivery as well as improving the utility of the phone app for the ranching community. The CSU graduate student conducted rancher interviews, using pláticas, with 31 ranchers of color related to adoption of innovations in agriculture and conservation generally, and rangeland management, focusing especially on women and men who identify as Indigenous, Hispanx, Latinx, or Chicanx. The pláticas provided insight into participants' interests in learning about LandPKS and other rangeland management information and technologies. Qualitative analysis of the pláticas looked for commonalities and motivations for adopting conservation practices. The primary topics that were identified are motivations for ranching, operation goals, key management practices, livestock/herd management practices, monitoring, success in ranching, challenges in ranching, strategies for addressing challenges, connection or relationship with the land and relatives, advice for young or beginner BIPOC ranchers, concerns about the future, and hopes for the future. The CSU team, and especially the graduate student, facilitated contacts with a number of Indigenous-led, Latinx-led and Black-led organizations that serve or engage with Indigenous and other historically underrepresented or marginalized racial and ethnic communities in the project region to engage them in discussions about LandPKS, and potential collaboration on workshops/webinars. Her insights from interviewing ranchers of color informed the outreach materials, webinar content, and greatly expanded the outreach to Latinx and Indigenous agricultural and regional organizations.

A peer-reviewed publication is planned but was not possible in the time frame of the project. We anticipate that at least one publication will come from the CSU collaboration. The team is also exploring other potential future publications to highlight the accomplishments of this project.

Project Recommendations for NRCS

Policy: BLM has officially endorsed the use of LandPKS for monitoring by permittees and others. Our results would support a similar endorsement by NRCS for private landowners. The US Roundtable for Sustainable Beef has also endorsed LandPKS and this project.

Outreach: Adaptive management concepts and the need for monitoring were very well received by the ranching community. NRCS should increase the use of this framing in their outreach with the ranchers. Showing the connection between the app and data needed to effectively manage rangelands should increase the use and uptake of adaptive management and the app. The team also found that outreach materials in Spanish were desired. We recommend that NRCS makes their materials more widely available in Spanish and other languages.

The new Wildlife Habitat module, and its integration with soil and ecological site information in LandPKS, provides private landowners with simple, site-specific access to knowledge they can use to improve their understanding of both the habitat potential of their land, and management options for improving habitat. The information is provided at a manager's level, filling the gap between scientific and technical documents, and simple identification guides. However, there is very little awareness that the module exists. The LandPKS team is currently working on modifications that will make the availability of the information in the module more obvious and allow it to be more easily accessed without a login. The Nature Conservancy would welcome future opportunities to partner with NRCS and ARS-Jornada (the lead app developer) to increase awareness.

Training: Training videos are on the landpotential.org website. Inclusion of a brief (30-60 minute) introduction to LandPKS in NRCS's Conservation Bootcamp, IIRH training, and other NTC trainings could help NRCS leverage this tool.

GLOSSARY OF TERMS

This glossary defines key terms, concepts, and theoretical frameworks used throughout this thesis. Many of these terms come from Chicana feminist, Indigenous feminist, and decolonial scholarship, while some emerge directly from the language and worldviews of the women ranchers who participated in this study.

Ancestral Knowledge: Ways of knowing passed down through generations through oral tradition, land-based practice, story and community experience. These knowledges are rooted in place, culture, spirituality, and history.

Bioregion: A geographic area defined by ecological features such as watersheds, soils and native species, as well as cultural relationships to the land. In this thesis, the "western bioregion of Turtle Island" refers to the interconnected ecological and cultural geographies of the western United States.

Cultural Continuity: The persistence of cultural practices, values, knowledge, spirituality, and lifeways across generations despite pressures of displacement, assimilation, and erasure.

Decolonial: A political and cultural process that seeks to dismantle colonial systems of power while reclaiming and revitalizing Indigenous sovereignty, relationships with land, and self-determination.

Herstory/Herstorical: The term herstory (or herstorical) was coined by Robin Morgan in her 1970 anthology *Sisterhood Is Powerful* (Morgan, 1970). It represents a feminist re-centering of women's lived experiences and contributions in contrast to male-centered histories. Herstory frames history from women's and feminist perspectives, emphasizing that what is remembered and valued is shaped by power.

Indigenous Sovereignty: The inherent right of Indigenous Nations and peoples to govern themselves, steward their lands, and sustain cultural and spiritual traditions, including the right to self-determination, independent of settler-colonial authority.

More-than-Human Kin: A concept grounded in Indigenous, particularly Dakota, worldviews that understand humans, plants, animals, waters, winds, soil, stones and other beings as part of an extended family of relations. It affirms that all beings, living and life-sustaining, are sentient, interconnected, and possess agency and spirit. This understanding reflects an ethic of relationality, reciprocity, and respect within a shared network of life (TallBear, 2011).

Mother Earth: An Indigenous worldview of land as a living relative, teacher and source of life rather than property or resource.

Plática(s): In Spanish, plática means "conversation." In this thesis, pláticas are a Chicana feminist, decolonial research method rooted in relational accountability, reciprocity and story-sharing. They differ from interviews, by being conversational, collaborative, and based on mutual trust and respect (Fierros & Delgado Bernal, 2016; Morales et al., 2023).

Racial Capitalism: A system in which economic processes and institutions are structured through racial hierarchies. It describes how capitalism relies on the production and exploitation of racial difference to extract value, limit access to resources, and maintain unequal power relations. In this study, racial capitalism shapes women ranchers' access to land, credit, markets, and institutional support and influences how policy and program frameworks marginalize Indigenous women and women of color land stewards.

Resistance: Individual and collective acts of survival, disruption, and transformation in the face of systemic oppression. In this study, resistance includes everyday practices of ranching, cultural continuity, and community care.

Settler-Colonialism: A “persistent social and political formation in which newcomers/colonizers/settlers come to a place, claim it as their own, and do whatever it takes to disappear the Indigenous peoples that are there.” (Arvin et al., 2013). It is a system of oppression that aims to displace and eliminate Indigenous peoples to replace them with a permanent settler society. This ongoing system operates through land theft, genocide, forced assimilation, and cultural erasure of Indigenous peoples, with the goal of establishing settler control over stolen lands. In this thesis, settler colonialism is also recognized as shaping and reinforcing other systems of oppression, including anti-Black and anti-Indigenous racism, cisheteropatriarchy, classism, sexism, and white supremacy.