TOWARDS RELATIONAL ACCOUNTABILITY AT LAND OF THE OSAGES RESEARCH FARM: A PLACE-BASED NARRATIVE INQUIRY

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by

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

TOWARDS RELATIONAL ACCOUNTABILITY AT LAND OF THE OSAGES RESEARCH FARM: A PLACE-BASED NARRATIVE INQUIRY

presented by Hannah Lea Hemmelgarn, a candidate for the degree of Doctor of Philosophy, and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

Life has a mysterious way of unfolding serendipitously. This PhD has been something of a puzzle whose pieces I've been fortunate to amass throughout my life with the help of many teachers and enablers along the way. Perhaps the most seminal teacher has been the land; and by "land" I mean all the life, the rocks and soil and water, the sky and seasons, all interwoven in moments of humbling awe.

Plants have been a constant companion in that space, facilitating my wellness and demonstrating how to be alive in partnership with the world around me. They show up in the countless cups of coffee and tea that kept me alert over long days of writing; they eased rest when I needed it most and relieved time in front of a computer screen with breaks in the garden. And with sun and soil and the abundance of critters who inhabit the gardens I tend, the perennial "weeds" teach me about patience, observation, beauty, and the slow healing that happens in places when we allow it.

I have my mother to thank not only for introducing me to plants by name, but also for sharing a sense of wonder and appreciation for their abundant offerings. From my father, I inherited an open-mindedness and philosophical nature cultivated over dinner table conversations about questions without answers. They both fostered in me, alongside my brother, an endless curiosity and a penchant for problem-solving.

I am most grateful for my closest allies over these dissertation years: Tim, who has kept home-baked bread on the table and who has cared for our home and child to make room for this adventure; Rye, who grew inside me in my first semester of classes and will be graduating Kindergarten next spring; Burdock and Jasper, who have warmed my lap and reminded me to wander; and my dearest friends Anna, Monica, and Tory, who

keep me grounded in community. This is for all of them, and for a thriving renewed rootedness of Osages on this land we call home.

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Despite that land grant universities have troubled histories in their relationship to stolen lands, they also ensure space for the work of diligent and rigorous questioning that has real implications for challenges we collectively face. Even while academic freedom may be an impossibility, I am grateful for any effort to strive for it.

This work is a reflection of the time, insights, and feedback provided by each of the participants in this inquiry. They are my colleagues and professional partners, and they have become my friends. I am very grateful for their willingness to engage in this process together.

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Figure Page

LIST OF TABLES

Table Page

TOWARDS RELATIONAL ACCOUNTABILITY AT LAND OF THE OSAGES RESEARCH FARM: A PLACE-BASED NARRATIVE INQUIRY

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ABSTRACT

Land of the Osages Research Farm is the most recent addition to the University of Missouri's Agricultural Experiment Station. Partners advising and engaging with the farm include MU, local, and Osage Nation representatives whose unique perspectives contribute to a dialogical narrative collage presented here as a case study for intercultural and place-based research farm development. In a movement towards relational accountability to each other and to place, with LORF as the central case, a methodological review supports bridging and braiding Indigenous and allied approaches for reflexivity and culturally responsive research that respects Osage sovereignty and local context. Given the geographic distance between the communities involved with and connected to the site, a deep mapping of LORF further supports presencing partners in the ecological, social, and temporal story of the farm. To effectively share a product of this research beyond the conventional dissertation format, a story map of LORF offers an accessible multi-media website and video recording inviting partners as/and research participants into a place-based relational awareness.

Chapter 1. Cultivating allyship in academia: Towards culturally responsive ethics and methodologies in Western agroforestry research

Abstract

As a practice of integrating perennial agricultural systems with long-term land stewardship, agroforestry is rooted in Indigenous cultural and ecological contexts that extend around the world and through centuries. However, the modern science of agroforestry has largely been conducted within Western and Westernized institutions where researchers, many of them non-Indigenous, are typically trained in ways that contrast with Indigenous ontologies and epistemologies, and that can result in extraction and exploitation of Indigenous knowledges. This reflexive review of relevant research approaches and methodologies considers how non-Native agroforestry scientists can begin to shift away from patterns of exploitation in land-based research, and move instead towards cultivating allyship and cultural humility, ethically centering Indigenous contributions and perspectives. Drawing from ethics guidelines, community-based and participatory action research methodologies, Indigenous methodologies, and intercultural case studies, and written from my perspective as a non-Native academic in agroforestry, this chapter contributes to the limited literature on methodological praxis as allyship specifically in land-based research, towards elucidating approaches that can create new patterns of respect, responsibility, and relational accountability.

Author positionality

I write from my perspective as it has been informed by many voices referenced and experiences shared, and I acknowledge here the major influences of the ways I have been educated in predominantly white spaces of Western ontology, in addition to my racial and cultural background, my intersecting identities, my position and power and privileges. My known ancestry is mostly European, with three or fewer generations before me on this continent. They arrived here as refugees from oppression and as settlers of a long-inhabited land. My familial lifeways and culture are influenced by this heritage, and are also in many ways disconnected from intergenerational histories and ancestral places. I identify as a white, cis-gender woman, with a graduate degree and feelings of stability in most aspects of my life. This positions me to have the capacity to reflect and to take responsibility for the realities of the place I now call home in the Midwest US and in my areas of work, and also to acknowledge limitations of my perspective and the multiple ontologies beyond my personal worldview. As someone who welcomes continuous learning (and unlearning) through receptivity and critique, I share this writing as a representation of my current understanding, reflections, and integrative analysis. Through practice and relational learning, my own and our collective understandings on this topic will certainly grow and change.

A note on terminology

"Indigenous" is a very broad identification of peoples worldwide who "have been present for thousands of years, preserving their language, traditions, culture and livelihoods" on their ancestral lands (FAO, 2016). There is of course a tremendous

diversity of peoples included within this category, which can both downplay the importance of an individual cultural group's (i.e., a single tribe's or nation's) experiences and also present a platform for solidarity between peoples and their experiences of (and responses to) colonization. "Native" or "Native American" specifically references people from hundreds of tribes indigenous to what is now the United States. Because I am located in the US, my perspective and choice of terminology is primarily a reflection of observations and literature from the US and English-speaking West. I use the term Native and non-Native specifically in relation to my own context and identification, sometimes interchangeably with the more globally inclusive Indigenous or non-Indigenous identifiers, particularly where relevant beyond US contexts.

Introduction

The *term* "agroforestry" was first defined in the 1977 text *Trees, Food, and People: Land Management in the Tropics* (Bene et al., 1977) as "a sustainable management system for land that increases overall production, combines agricultural crops, tree crops, and forest plants and/or animals simultaneously or sequentially, and applies management practices that are compatible with the cultural patterns of the local population" (p.39). The context is inherently one of exploitation, for increasing production, yet it also emphasizes cultural compatibility. Humans define, interpret, and design their practices relevant to their landscapes and cultures. Despite that the term agroforestry is relatively young, it is well understood that the practice of agroforestry, in its many culturally and ecologically compatible forms, has been employed on landscapes

around the world by Indigenous peoples for millennia (Rossier & Lake, 2014; MacFarland et al., 2017).

Agroforestry, in practice and study, is also entirely context specific and interdisciplinary; plant community composition, climate, and human interactions affect how land is stewarded, and the long histories of these interactions can inform an adaptive approach for the future. In some places, particularly where people have had continuous presence on and with a landscape, ancient agroforestry practices continue. Homegardens and shifting cultivation, involving combinations of selected standing trees with cleared area for cultivation and tended plants in the tropics of Central America, Asia, and Africa mimic the diversity and structure of forests in plots as small as one tenth of a hectare that provide food, medicine, fiber and construction materials, and fodder (Nair, 1993). In Dehesas of southwestern Spain, oak savannas were maintained and appreciated for acorn masts feeding livestock and humans alongside pastures or cultivated grains, with the added benefit of harvested timber, processed charcoal, tannin, and cork (Joffre et al., 1988). Across diverse ecosystems in temperate North America, similar practices of forest stewardship with fire, grazing, selection and interplanting created what we might now call a forest garden by the earliest inhabitants of this place (Lovell et al., 2021; Abrams & Nowacki, 2008).

Native science has inevitably been part of these land-based systems and a relational adaptive management (Cajete, 2000; LaDuke, 1994), but modern research on agroforestry has largely happened in Western academic pockets, where non-Native and Native scientists alike pursue deeper understanding within predominantly white and ontologically homogenous spaces. Land-grant institutions, like the one where I am

employed, prioritize agricultural research and technology transfer (outreach) for successful farming measured primarily in terms of productivity and profitability, yet in many cases still lack acknowledgment of ancestral land stewardship and its influences on our fields, let alone a practical responsiveness to these realities. Where Western science operates through a reductionist, materialist ontology, Indigenous science (and land stewardship) offers ways of relating to knowledge (and land) that invite greater connectivity, relationality, and multidimensional complexity that better match the nature of the longest-lived agroforestry systems. The same influences of colonization that affect our epistemologies can be seen in the landscape, where prairies and wetlands and forests alike have been transformed into row crop annual monocultures. History has shaped the way diversified perennial farm systems are applied as well; larger acreage holdings call for more simplicity, as in alley cropped orchards of a single tree species interplanted with a single species alley planting. The science of these systems, not surprisingly, follows suit, adjusting to the conditions and demands of active farmers, to our assumed metrics for success, and to the given worldview of scientists.

Indigenous scientists within academic institutions have been and are continuing to broaden this view, but the presence of and support for Indigenous academic leadership varies considerably by institution, affected not only by active administrators, but also by the histories of the institutions and their surroundings that have led to current campus climates. The University of Missouri (MU) was established in 1839 as the first state university west of the Mississippi River and the first in Thomas Jefferson's Louisiana Purchase territory. In the same year, "Missouri law required any Native person who entered the state to have written permission from a government Indian agent in order to

do so" (Olson, 2023, p.xix). The US Morrill Act, which recognized MU as an 1862 Land Grant University, "secured its future" (https://missouri.edu/timeline/, n.d.) with the wealth of lands reallocated entirely from 1808 and 1825 Osage treaties presented by Merriwether Lewis "as an alternative to their extinction" (Lee & Ahtone, 2020). Indigenous students and faculty remain severely underrepresented at MU. Students identifying as Native American, Alaska Native, Native Hawaiian or other Pacific Islander represent less than 0.003% of the student body (UnivStats, 2024), and there are currently only a few Indigenous faculty on the entire campus, none of whom are in the College of Agriculture, Food, & Natural Resources. Where Indigenous representation is lacking, so too is the space for Indigenous knowledges held within place-informed cultures.

Until recently, the USDA did not recognize Indigenous Knowledge (IK) as "Best Available Scientific Information", neglecting an applied intergenerational depth of land-based understanding in fields now delineated as ecology, agriculture, and agroforestry among others as "information that is the most accurate, reliable, and relevant to the issues being covered" (National Archives & Records Administration, 2025; Lander & Mallory, 2021). This change marks a broader trend towards recognizing and integrating place-based IK in Western science and applications (Jessen et al., 2021), alongside increased organizing around IK in agroforestry. In 2024, the Indigenous Agroforestry Network, based in the Pacific Northwest US, held its first in-person gathering; in the same year, the USDA announced an unprecedented level of funding to "strengthen tribal food sovereignty, co-stewardship, and knowledge of tribal agricultural policy" (USDA Press Release, June 5, 2024, removed January, 2025). While Indigenous scientists have sustained a dedication to culturally relevant land-based research for decades within

Western institutions and well beyond, renewed interest in IK and its applications by non-Indigenous scholars presents both an opening and a challenge. With a growing recognition of the importance of Indigenous contributions, particularly in sustainable agroecosystems and agroforestry, there is an equally growing need for awareness of ethical intercultural engagement in research and applications that centers plurality, cultural and place-based awareness, and Indigenous self-determination.

An Indigenous research agenda described by Linda Tuhiwai Smith in *Decolonizing Methodologies* (1999) necessarily contributes to Indigenous peoples' self-determination through strategic mobilization, transformation, healing, and decolonization. Pathways for the research agenda presented by Smith (1999) include community action projects, such as local initiatives and tribal research about claims, or "spaces gained within institutions by Indigenous research centres and studies programmes" (p.128). Smith (1999) and many others (e.g., Kovach, 2009; Wilson, 2008; Absolon, 2011) primarily write *as* Indigenous scholars *for* Indigenous scholars, that is, Indigenous ontologies and methodologies are not intended to be broadly applied (or misappropriated) by non-Indigenous scientists. However, non-Indigenous academic researchers and educators can have an important role to play as allies in Western(ized) institutions, particularly where Native representation is otherwise lacking (Wilson, 2024), and where actionable allyship can "resist the invisible yet systemic erasure of our epistomes" (Monzo & Soohoo, 2014, p.160; Radford, 2018).

The persistence and innovations of Indigenous peoples through colonization and forced removals and dislocations, which parallels some aspects of the climatic disruptions of global climate change, presents an urgent lesson for collective resilience through

biological upheavals (Whyte, 2017). In spite of layered challenges, there are a multitude of examples of retention, adaptation, and resurgence of traditional land stewardship practices in agroforestry (Indigenous Agroforestry Network, 2024; Rossier & Lake, 2014; MacFarland et al., 2017). This resilience may be, in part, attributed to the nature of Indigenous Knowledges (IK) and Traditional Ecological Knowledge (TEK) as an extensive body of culturally and spiritually based knowledges that broadly inform how Indigenous peoples relate to their ecosystems, transmitted through generations of careful observation and continuous residence from time immemorial (Berkes, 2000; LaDuke, 1994; Kimmerer, 2013). However, the rekindling of place-based TEK is also problematized by the ongoing realities of colonization: from ripples of cultural and physical genocide to political boundaries and regulations, and economic and sociocultural patterns that are misaligned with these traditions (Kimmerer, 2024).

Agriculture, pharmacology, botany, and ethnobotany disciplines -in research and practice- have long benefitted from IK/TEK (e.g., domesticated plants, irrigation systems, engineering innovations), but many Western land management scientists have maintained a dismissive attitude about Indigenous Knowledge systems based on their qualitative, holistic, relational, and spiritual foundations, which contrast with Western positivist approaches that are standard in biophysical sciences (Berkes, 2000; Cajete, 2000; Johannes, 1989; DeWalt, 1994; LaDuke, 1994). From cessions of tribal lands to legal ramifications of Western colonizer skepticism and dismissal of land management practices based on TEK, the devaluing of Indigenous knowledge systems has had ramifications far beyond its absence from and misapplications in academic research (Waller & Reo, 2018). Until a humility of our (settlers') relatively short-term knowledge

of place catches up with our practices, we are likely to continue to repeat patterns of misunderstanding and misuse.

Modern agroforestry scientists are predominantly entrenched within Western materialist ontology, epistemology, and pedagogy; distinct from the worldviews rooted in agroforestry's origins. At the same time, we have an opportunity to link an awareness and appreciation of place-based Indigenous traditions and practices with our research to support resilient working lands and communities. If this linking is without ethical and methodological commitments to relational accountability, we may perpetuate conditions for continued misappropriation, exploitation, and harm, which ultimately do not serve our field or each other (Smith, 1999; Waller & Reo, 2018). Non-Indigenous agroforestry researchers have a responsibility to divert from these patterns, with requisite reflection on our current practices and positionality, commitment to learning from what has been shared through previous and ongoing collaborations, and institutional adjustments to accommodate plurality moving forward.

Purpose and Questions

With an awareness of the juxtaposition between the cultural foundations of agroforestry and the Western academic study of the field, this chapter centers on a review of ethics guidelines, epistemologies, and methodologies that can support allyship and respectful intercultural research where Indigenous science, perspectives, and experiences might become more meaningfully recognized and integrated specifically within otherwise Western agroforestry research contexts. Importantly, insights from this review are not intended for one-size-fits-all application. The histories and realities of each place and

community demand unique approaches that are responsive to actual conditions and possibilities.

Culturally responsive research is “grounded in an ethic of plurality, rather than prescriptions and prohibitions” (McGregor et al., 2018, p.18). This plurality is reflected in this reflexive review as a collection of approaches presented in the literature, woven with my own experiences on a path to seeking actionable place-based allyship at the University of Missouri Center for Agroforestry. It is an invitation for methodological reflection, creativity, critique, and adaptation based on one's own or communities’ unique circumstances. Further, as a non-Native person attending to relational accountability in place-based agroforestry research, I share what emerges from the literature that is relevant to apply in an *intercultural* context, specifically that which can illuminate a path to ethical and meaningful allyship in place-based agroforestry research.

I am inspired by examples from similar orientations that explicitly address the challenges and nuances of Indigenous allyship in land-based research and that are grounded in experience and critical reflection (e.g., Howard, 2022; McGregor et al., 2018; Bannister, 2018). Just as their writing is insightful across similar orientations *and* specific to their own context, so too is the purpose for this reflexive review of relevant ethics and methodologies for biocultural agroforestry research and restoration planning at MU’s Land of the Osages Research Farm, where my efforts are currently focused. Our collective works may contribute to a broadening epistemological and ontological awareness among Westernized land-based researchers and educators by bringing together relevant methodological, actionable insights across disciplines. Within this framing, I respond to the question: *How can non-Indigenous academics approach agroforestry*

research that meaningfully centers Indigenous perspectives, experiences, and applications, particularly in contexts where a supportive intercultural infrastructure is not already in place?

Reflexivity, Positionality and Context

Agroforestry research is inherently place-based. While lessons from one (agro)ecological scenario or outcome may be applied with some degree of generalizability elsewhere given shared natural laws, unique circumstances and communities require that researchers adequately describe context-specific variables and interactions. The human dimensions of a research context, i.e., the unique perspectives and background of the researchers or authors and their epistemological assumptions, are rarely as well defined. Attention to positionality is not uncommon in social sciences and qualitative health and education research, but the influences of researcher positionality are no less important in any land-based science.

Grounded in the Freirian concept of *praxis* as transformative action and reflection for social justice, *reflexivity* is a practice of critical reflection about our identities and relationships to others, to processes, and to systems of power and other social structures (Freire 1970; Call-Cummings et al. 2023). Like a physical reflex, an involuntary automatic action in response to a stimulus, our patterns and behaviors are also affected by social, cultural, and political underpinnings and experiences. A reflexive practice can lead us to see some of the sources of those patterns and to consider how these influences shape the work we do (including acknowledging and addressing biases and our unique

perspectives in a research context). As such, reflexivity is rooted in ethical and transformative research commitments.

Increasingly, literature on reflexivity highlights its importance not only in qualitative social science research, but in any inquiry that involves people (even if only the human researcher(s) themselves) – as co-researchers, co-authors, or participants – in order to recognize and appreciate the ways our intersectional identities and experiences affect the way we generate questions and methods, collect and analyze data, and formulate and share conclusions (Cayir et al., 2022; Kingdon, 2005). In essence, "knowledge cannot be separated from the knower" (Steedman, 1991, p53). 'Knowers' are also situated within place, context, relationships, and roles that can be both enabling and limiting. Researcher reflexivity may occur informally or as an ancillary activity within the research process, but where documented and shared, it can yield important baseline understandings of a priori assumptions (Probst & Berenson, 2014; Watt, 2007).

Positionality is the "intersecting, multiple, and evolving identities that involve both the totality and individuality of our experiences in this world, our socialization, our physical markers, our privileges, and the ways in which we are socially, politically, and economically targeted" (Call-Cummings et al., 2023, p3). Because of the ways positionality patterns our social and cognitive reflexes, it is a central aspect of reflexivity. More than a list of characteristics, transparency about our positionality is storied and nuanced; it is situated in place and in relation to our communities and experiences. Because positionality is relational, there is merit in collective or "team-based" reflexivity practice as well (Archer, 2013; Cayir et al., 2022). Multiple intersecting positions can

elucidate the ways our respective positionality can define our experiences and interpretations even within a shared institution.

The positionality statement I shared in the opening acknowledgments for this paper is foundational for readers to understand a very broad context of who I am as the author and producer of this tapestry of ideas; however, even beyond core identities, the integration of positionality within the research process itself adds dimension and meaning-making potential between the writer/researcher and reader. My exposure to this layer of academic writing has been greatly enhanced by examples from Indigenous authors including Shawn Wilson (*Research Is Ceremony*, 2008) and Kathleen E. Absolon Minogiizhigokwe (*Kaandossiwin: How We Come to Know*, 2011) who write their storied experiences *as* and *about* research. The braiding of experiences and reflections as part of reflexive meaning-making is not relegated to Indigenous authors (McGregor et al., 2018); it is, however, an ontological shift away from Westernized academic traditions that separate the knowledge producer from their product in order to suggest objectivity. This approach explicitly acknowledges subjectivity and avoids relegating it as inherently problematic by moving towards transparency and framed understanding.

As a practice of positionality and reflexivity, I share important context, relationships, interactions, and moments of new connections as a way to wear a trail for readers who may arrive at parallel insights through their own winding paths. For instance, what led, in part, to my arrival at the need for this compilation was an internal questioning of ‘Who am I to be doing research related to Indigenous agroforestry here, as someone without Native ancestry in this place?’ and ‘How does my perspective affect the way I relate to this subject, how I understand it, and how I can (or cannot) apply it?’

Having lived most of my life in Missouri, where “the perceived absence of Indigenous people is particularly noticeable in the state’s history” (Olson, 2023, p xix), it was only the continued exposure to critical reflections on this environment through a growing body of literature on decolonization, public presentations, and witnessing Indigenous visibility and land-based sovereignty in practice in other places that challenged me to see the missing narrative in my own work and institution. In response to growing calls for land reparations and decolonization, non-Indigenous land-based scientists are now more often expected to attend to a responsibility to recognize and react to the realities of the history of the places where we work, study, and live.

Even with good intentions, there can be missteps in a response, and ultimately also opportunities for learning. Early in my attempts to prioritize this responsibility, I fell back on learned habits by seeking funding and mentorship before establishing trusting relationships and understanding. I jumped to action because swift movement and tangible outputs are what I have been taught is effective and successful (in a Western academic context). Relationships were damaged, and I ultimately took a big step back for perspective to re-evaluate my intentions and process. The clunkiness I still experience following through on intercultural projects is also a reflection of learned patterns and assumptions: that leadership means decisive bold action, that silence in conversation is lost time, that slowing down is a detriment to valued productivity. These are some of the illuminations of reflection that have called me to question the limits of an assumed Western ontology for embracing plurality, particularly where Indigenous and other worldviews are critical for our adaptive survival and success.

Notably, positionality statements have been critiqued as further centering the unequal privilege of white Western authors, particularly where they are intended to relinquish a researcher from their responsibility not only to acknowledge hierarchies and inequities, but also to dismantle them (Gani & Khan, 2024). A reparative scholarship moves beyond the practice of positionality and reflexivity towards a more comprehensive repatterning and accountability. This can begin, in part, by evaluating our ethical commitments, our underlying epistemological stances, and the ways these interact with methodological choices and research outcomes.

Research ethics (beyond the IRB)

"Human subjects research" in academic settings requires Institutional Review Board (IRB) approval, often as the sole ethics review point. The ethical standards that eventually led to IRB protocols originally emerged in response to violent abuses in the name of medical and behavioral experimentation, most visibly during the Nuremberg trials which brought attention to Nazi medical experimentation during WWII and resulted in the Nuremburg Code of 1945, followed by (among others) the Tuskegee Syphilis Study, exposed in 1972, which prompted the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research in the US in 1974. The Commission, consisting of physicians, law and medicine professors, and one representative of the National Council of Negro Women (eight men, three women, and only one person of color) published The Belmont Report (1979) which outlines what are still considered the most basic ethical principles of human subjects research embedded in IRB protocols in the US. These ethical principles include 1) *Respect for Persons*,

recognizing individuals' autonomy and the need for protection of those with diminished autonomy, 2) *Beneficence*, an obligation to maximize potential benefits and minimize possible harms, and 3) *Justice*, that the benefits of research are duly shared.

The IRB process, which includes required basic training and a submission of the details of human subjects research to ensure compliance with The Belmont Report's principles, was a major step towards protecting research subjects. However, scholars have critiqued the IRB for its limited, and in some cases misaligned function and scope. Implicit in The Belmont Report and the public law that ensued is that research involving humans involves them as "subjects", separated to some degree from the researcher's knowledge and authority. While there are certainly researchers who value and engage study participants in a more meaningful way, IRB expectations, as a singular source of guidance and oversight, can be applied as the beginning and end of ethical commitments. The public response to ethical violations in research was aimed at resolving visible problems in biomedical and behavioral research, but neglected the multitude of ways humans, as subjects, participants, or co-producers of knowledge, can engage in research, including from the outset of its formulation. As Call-Cummings et al. (2023) point out in their text on Critical Participatory Inquiry, "the question 'Is your research ethical?' is not synonymous with 'Did you obtain IRB approval?'"(p.55) suggesting that an IRB, as a procedural aspect of ethical oversight, does not reflect the full extent of culturally and morally informed ethical values that should be considered in research involving people, communities, and the relationships between them and the inquiry itself. Sabati (2019) extends this critique, highlighting the ways that IRBs can also be sites of "colonial unknowing" within universities that value accumulation and extraction and remove

researchers from a more contextual awareness of “the racial-colonial entanglements that are at the foundations of research and US-based institutions” (p.1061).

Beyond the requirements of an IRB, scientists in the fields of ethnobiology, geography, (and many others in biomedical and behavioral fields as listed by US Dept. of Health & Human Services, 2024) have established additional ethical standards for their disciplines, particularly in the context of research involving Indigenous peoples and their knowledge, resources, or experiences, well beyond what would otherwise be labeled human subjects research. Internationally, The Mataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples (1993) emphasizes that Indigenous peoples “must be recognised as the exclusive owners of their cultural and intellectual property”, and insists that “the first beneficiaries of indigenous knowledge must be direct indigenous descendants of such knowledge” (p.2). Likewise, the Food and Agriculture Organization UN Declaration on the Rights of Indigenous Peoples (UNDRIP) describes the necessity of Free, Prior and Informed Consent when Indigenous peoples choose to share “cultural, intellectual, religious and spiritual property” (UNDRIP, 2007, p.12). The US did not initially vote in favor of UNDRIP, but President Obama announced a changed position in 2011, recognizing that the declaration “-while not legally binding or a statement of current international law- has both moral and political force” (US Dept of State Archives, 2011).

Data sovereignty, a nation’s ability to govern their own data (how it is collected, shared, and owned) is at the center of these declarations, and yet the challenges and needs for implementation or practice of data sovereignty, and ethical responsibilities more broadly, remain an important subject of discussion and movement (Kukutai & Taylor,

2016) particularly given the lack of explicit regulations or oversight. Because of the potential for non-Indigenous resource managers and industry professionals to benefit without any direct compensation back to the tribes as original knowledge holders, the misappropriation of TEK and land-based practices is a concern for openness and sharing outside of Native communities, where "it enters alien social and legal contexts" (Williams & Hardison, 2013, p.534). At the same time, research and applied endeavors to realize the important role of TEK in various place-based contexts highlights a growing awareness of the potential complementary nature of TEK with other ways of knowing, including Western science (Berkes, 2000; DeWalt, 1994; Kimmerer, 2013).

At its core, data sovereignty is a matter of honoring Indigenous intellectual property. Still, ethical uncertainties and the conflicting ontologies manifested within institutionally guided research are at the heart of many authors' in-depth reflections on ethics in practice involving Indigenous participants or co-researchers, their knowledge and stories (e.g., Bannister, 2018; Stanton, 2014; McGregor et al., 2018; Drugge, 2016). Native scientists and Western settler scientists have expressed interest in and demonstrated practice of these mutually beneficial ways of knowing through community-based research and co-production of knowledge (e.g., Karuk Tribe DNR, 2010). This conjunction, while not always easily interwoven (Kimmerer, 2013), is particularly relevant as we collectively face changing conditions that must be met with awareness of the wisdom of Indigenous peoples' experiences and knowledges (Agrawal, 2002; MacFarland et al., 2017; Rawal, 2020).

Bannister's (2018) invitation for humility and learning in ethical praxis illustrates the nuanced and complicated realities of moving ethical codes beyond prescription. Her

perspective on “ethical dilemmas, conflicts, and differences that arise as part of our ‘humanness’” (Bannister, 2018, p.31) resonated with my own experiences, problematized by conflicting ontologies and expectations. For instance, in an institution that values expediency, publication outputs, and external funding, it is easy to fall into extractive and transactional patterns that may not account for the full trajectory of research data or the values and goals each co-researcher brings to a project. With the time necessary to grow an authentic relationship, research partners can better understand one another’s motives, intentions, and concerns, alongside additional commitments and accountability measures for data protection and reciprocity. This can, however, require an extra lift of educating colleagues, supervisors, or funders about the nature of ethical, relational, intercultural research outside of Western academic norms.

Applied in the context of place-based collaborative research, Koster et al.’s (2012) reflexive analysis of a five-year research partnership with the Red Rock Indian Band emphasizes that “researchers should continue to move away from methods that perpetuate the traditional ways of working *on* Indigenous communities to methods that allow us to work *with* and *for* them, based on an ethic that respects and values the community as a full partner in the co-creation of the research question and process, and shares in the acquisition, analysis, and dissemination of knowledge” (p.196). A “full partner” stance, however, may still neglect “a critical understanding of how colonial-based relations of power and knowledge production shape research practices” (Indigenous Peoples Specialty Group of the American Association of Geographers [IPSG AAG], 2010, p.1). Partnership insinuates equal contribution; in order to make up for legacies of inequity in these power and knowledge dynamics, ceding leadership and

direction to Indigenous scientists better reflects a balancing of scales that have been, since colonization, asymmetric. Further, ethical guidelines can be subject to interpretation and pose challenges where power and decision-making still rest outside of affected communities and their knowledges (Koot et al., 2023).

In lieu of a set of static guidelines or principles, the Indigenous Peoples Specialty Group of the Association of American Geographers (IPSG AAG) developed a set of questions intended to incite reflection and address the nuance of research relationships, given that "formulating ethical guidelines may involve negotiation, nuance, and sometimes contradiction" (IPSG AAG, 2010, p.3). These key questions recognize the context-specific nature of ethics in practice and embrace an ongoing return to evaluating our commitments rather than a single point of review.

Table 1. Summary of IPSG AAG Key Questions about Research Ethics with Indigenous Communities, adapted from Tobias et al., 2013.

Research Area	**Key Questions**
Project Formulation	· Who or what is guiding the pace of the project? · How much time is invested in building relationships? · What role does the community have in shaping and permitting the research? · How is the project ensuring protection of community wellbeing and knowledges?
Identities of Researchers	· How have relationships of power and positionality been addressed? · Have researchers been trained in cultural respect and reciprocity? · How does the research center Indigenous communities' self-determination? · Is there research advising or mentorship from within the community?
Partnerships	· How is the community shaping the ultimate purpose and goals of the project? · Is communication clear, accessible, and transparent?

	· How does the project's agenda seek to heal or sidestep divisions?
Benefits	· How is traditional knowledge included in the project/ shared with the public? · How will community partners be acknowledged and compensated for contributions? · What forms of reciprocity are negotiated to benefit the community? · What plan is in place for the review/ translation of research publications and products?
Findings	· How are the voices and viewpoints of Indigenous people presented? · Who has ownership of/ access to research materials? · What accountability is in place to respect and safeguard the value of Indigenous knowledges?
Deepening Relationships	· Are researchers prepared to share their motivations and intentions for the project? · What long-term relationships will be built and maintained with the community? · How is local cultural protocol (e.g., gift-giving) incorporated into the methodology? · Will the project value intergenerational knowledge sharing and revisiting or reinforcing community understanding?

Likewise, as an extension of ethics codes as basic guardrails, relational ethics and "ethical space" recognizes the complexity of intersections between worldviews (Ermine, 2007). Histories of genocide and violent removals, paired with broken treaties and active reminders of ill tended relationship between nations also affect the "cultural interface" (Nakata, 2007) where an ethical space might be stewarded (McGloin, 2009). Intercultural spaces (intentional or not) are affected by the layered and nuanced elements that shape our way of seeing and understanding the world. Rather than become limited by our own worldviews, a culturally responsive ethic calls on researchers to be "socioculturally conscious"; to recognize, value, and validate cultural differences; to address power differentials and situational needs for participants to be fully heard and meaningfully

engaged; and to adjust or adapt methodologies based on cultural best fit for participants and/as co-researchers (Lahman, 2022).

Methodological and epistemological orientations for intercultural allied Indigenous research

Methodologies guide our approach to research methods and procedures, and they are imbued with our epistemologies and ontologies. They can also demonstrate our ethical stance. Just as ethics guidelines and principles have been extended and presented in new ways for specific contexts, a chosen methodology should align with researchers' purpose, participants, questions, and desired outcomes.

Reflection on methodology reveals ways Western colonial patterns of positivist reductionist knowledge extraction persist in academia, and can also present ways to shift towards translating Indigenous-guided research ethics into practice. Shifting methodologies for culturally responsive research does not, however, equate to (mis)appropriating Indigenous voice, experience, or knowledges. "Embrace First Voice as Methodology" advises Graveline (2000, p.362). "First Voice" as an ally means seeing the place(s) we ourselves are connected to, who we are, and how our own experiences and contributions can (or cannot) support moves toward Indigenous self-determination. Questioning whether and how we (as allies) can have a meaningful place in research with(in) Indigenous contexts is a critical step, and one that deserves returning attention (Aveling, 2013).

"How to begin" and "how to enter" are questions I lingered on in seeking meaningful intercultural purpose. Inspiration and desire alone do not qualify a non-Indigenous person to proceed, but a readiness to understand, to show up and listen

humbly, and to adapt and respond can facilitate initial movement. In 2018, I presented my thesis research on Missouri high school agroforestry curriculum development and teacher training at the National Sustainable Agricultural Education Association Conference held that year at the University of Hawai'i at Manoa, on the Island of O'ahu. The conference themes that year included Indigenous knowledge, decolonization, and socio-ecological resilience in agroecology and sustainable food systems education. Native Hawaiian faculty, students, and youth led the conference according to their traditions, with ceremony, honoring the land and important elders in this work, including keynote speaker Gregory Cajete, and young people with the local Hoʻōla ʻĀina O Māʻilikūkahi Youth Food Sovereignty Congress. We visited farms where traditional Indigenous stewardship guided inquiry on agroecological restoration and rematriation. This experience was a profound wake-up to the stories I was missing in my agroforestry work back home in Missouri. I was eager to reconcile this disconnection, but I had not, at that point, been exposed to local, place-informed Native perspectives sufficiently to enter the process knowledgeably.

The following year, in an eagerness to begin untangling a pathway to Indigenous engagement with the Center for Agroforestry, I pursued a small internal grant through the MU DEI office (now shuttered) to get council from Indigenous faculty and students at MU on a redesign of the courtyard in the building where I work. With consultation from the only Native instructor in CAFNR at the time and faculty in other colleges who had done similar kinds of projects, we proceeded and were funded. Almost immediately, criticism of the plan emerged from multiple directions: the grant would not fund food for meals where we might gather to hear one another, nor would it fund faculty professional

development. Native faculty at MU who had not contributed to the proposal development (but who were invited to participate as advisors) pointed out the absence of existing trusting relationships necessary to move forward. And on top of it all, COVID-19 halted the courtyard redesign project entirely. The grant did, however, have a humbling effect and created opportunities for me and my close colleagues to make initial contact with Osage representatives, to attend the Indigenous Farming Conference hosted by the White Earth Land Recovery Project, and to begin to evaluate and reflect on how errors could have been avoided.

In Missouri, the absence of federally recognized tribes can be a barrier; it can also be an excuse to neglect the reality that treaties removing Osages from their land here were signed just 200 years ago. Osage Nation has been located in Northeast Oklahoma for over 150 years. This time and distance can feel immense, and yet, not-too-distant relatives of Osages are buried on these lands; many standing trees here have lived to witness this transition of peoples and cultures. If time and distance were prohibitive, the effort would have ended there, but relationships and learning narrow the gap. Learning begins not only with an understanding of place and people over time, present groups and movements, but also with a review of insights from intercultural academic collaborations and Indigenous academic perspectives. In direct resistance to "settler moves to innocence" through collaboration as co-optation, Tuck & Yang (2012) "position the work of Indigenous thinkers as central in unlocking the confounding aspects of public schooling" (p.3) which can extend to research and education more broadly, including critically informing methodological decisions.

Indigenous methodologies as commitments

Indigenous methodologies, as described by authors such as Kathleen E. Absolon in *Kaandossiwin: How We Come to Know* (2011), emphasize entering a research process with preparation, "announc[ing] yourself and your intentions" (p.25), and demonstrating respect for relationships to the land and to those involved and affected by the research. Recognition of the researcher as central in defining the inquiry supports a core tenet of qualitative research more broadly, for internal validity, trustworthiness, and credibility through the transparency of positionality and reflexivity practices. From a non-Indigenous standpoint, transparency about my relationship to place involves a hard look at settler colonialism and my role in it. How is my research resisting or upholding settler colonialism? How can an understanding of Indigenous methodologies contribute to my approach as a non-Indigenous person when it is "difficult to discuss *research methodology* and *indigenous peoples* together, in the same breath, without having an analysis of imperialism, without understanding the complex ways in which the pursuit of knowledge is deeply embedded in the multiple layers of imperial and colonial practices" (Smith, 1999, p.2).

Through these troubled histories, Indigenous methodologies are inevitably embedded within an anticolonial framework that center Indigenous self-determination as a requisite antidote to legacies of oppression, objectification, and exclusion of Indigenous peoples in research spaces. Alongside this underlying orientation to actively address Indigenous self-determination through mobilization, healing, transformation, and decolonization (Smith, 1999, p.121), themes of Indigenous methodologies across contexts include 1) adherence to and respect for cultural values and protocols, 2) commitment to long-term relationships that extend before and beyond any discrete

research activity, 3) relevance and responsiveness to expressed community interests, strengths, questions, and desired outcomes, 4) a responsibility to and accountability for these outcomes, community directives, and enduring relationships, 5) recognition of experience (as story/ narrative, conversation, art etc.) as meaningful data, extending from what is observed to what is felt (as a spiritual aspect of knowing), and 6) an understanding of all knowledge and learning as relational, requiring personal and interpersonal reflection and reciprocity (Absolon, 2011; Archibald, 2008; Kirkness & Barnhardt, 1991; Kovach, 2009; Smith, 1999; Wilson, 2008; Wilson et al., 2019).

From a relational Indigenous epistemology, relational accountability, as presented by Wilson (2008), "means that methodology needs to be based in a community context (be relational) and has to demonstrate respect, reciprocity and responsibility (be accountable as it is put into action) (p.99) … "It's a matter of forming a relationship that goes beyond the informant-researcher duality to becoming co-learners" (p.113). These core tenets have been summarized as the "four R's" of Indigenous research: respect, reciprocity, relevance, and responsibility (Kirkness & Barnhardt, 1991) and extended by others to also highlight principles of relationality, reverence, authenticity, reflexivity, holism and interrelatedness, rights and regulations, and representation (Archibald, 2008; Kovach, 2009; Wilson, 2008).

These essential commitments can and have been centered in collaborative intercultural research led by non-Indigenous scientists as well, though not without stumbling in effectively putting them into practice (Fassetta & Imperiale, 2018; McGregor et al., 2018; Snow, 2018, and others). However, as Fassetta & Imperiale (2018) point out in a review of Indigenous engagement in international development

research partnerships, in spite of a recognized need for reflexivity in these contexts, more limited are examples of "open and frank reflection on power dynamics or on the ways in which unexpected occurrences were negotiated" (p.9). Effective application of relational accountability for *allyship* in Indigenous research requires attention to these commitments at every step, alongside critical reflexivity within what is described as Two-Eyed Seeing between Western and Indigenous ontologies, engaging strengths of both Indigenous and Western sciences, learning to see each through an eye side by side for overall benefit (Bartlett et al., 2012). In moves to true plurality, even within culturally diverse Indigenous worldviews, Bartlett et al. (2012) point out that we equally "might wish to talk about Four-Eyed Seeing, or Ten-Eyed Seeing, etc." (p.336). However, the practical applications of a Two- (or more) Eyed Seeing approach often remain vague or conceptual given the nuances of each unique context (Wright et al., 2019). Methodologies that support these guiding principles can offer pathways to revising and resisting normalized extractive approaches to research.

Bridging and braiding methodologies towards allyship in land-based research

Relational accountability, which centers the responsibility of the researcher to the communities involved in a given research effort, is at the heart of the approach termed Community-Based Participatory Research or CBPR (Tobias et al., 2013; Wilson, 2008). Aligned with the R's of Indigenous research (Kirkness & Barnhardt, 1991; Wilson, 2008), its associated ethical imperatives are rooted in acknowledging power imbalances in these relationships, focusing on relevant community-directed objectives, ensuring reciprocity with benefits to community wellbeing, and respecting Indigenous community

members' protocols (Fletcher et al., 2016; Datta, 2019; Davidson-Hunt & O'Flaherty, 2007; Tobias et al., 2013). This methodology is "an attempt by researchers to actively involve the communities they aim to serve in every aspect of the research process, from the identification of a problem to the distribution of research findings" (Leavy, 2017, p.10) to create conditions for community ownership of the research, continuous engagement, and momentum for social change (Castleden et al., 2008; Tobias et al., 2013). A recursive CBPR design incorporates transparency and reflexivity at all stages of the research to support an egalitarian model of knowledge production and shared benefit.

In recognizing and responding to potential constraints when employing CBPR, scholars who have assessed the efficacy of their community-based and participatory action research note the importance of authentic connections and trust among research partners *before, throughout, and after* a formal research collaboration (Davidson-Hunt & O'Flaherty, 2007; Datta, 2019; Tobias et al., 2013). Lisko et al. (2022) specifically call for *caring relationships* that acknowledge and honor the need for "confront[ing] questions of power and control in research relationships" (p.200). This involves an aim to reconcile the realities that any category or identified group of people represented in a participatory inquiry includes individuals with unique perspectives, (i.e., that no group is a monolith) and that these groups and individuals bring distinct goals, resources, and positions in relation to the research and institution. Where enduring, caring partnerships attend to transparency about challenges and follow-through on shared goals, benefits, and decision-making, relationships can move away from exploitative and transactional relationships, and towards *transformational* partnership (Lisko et al., 2022) that can bridge Western science and Indigenous knowledges in both directions (Howard, 2022).

In theory, CBPR, and critical participatory inquiry more broadly, offer a promising orientation for anticolonial research partnerships, but in practice, institutional barriers can result in "superficial versions of CBPR" (Stanton, 2014, p.574). The time required to establish trusting partnerships may be in direct conflict with productivity expectations, and full participation (including collaborative analysis) can be seen as problematic for confidentiality expectations of an IRB (Koster et al., 2012; Stanton, 2014). Ultimately, CBPR, as an epistemological orientation more than a methodology, must be grounded in contextual awareness and responsiveness. The degree and form of participation will be determined by the goals of participants (as advisors, co-researchers, and/or co-authors) and also by the limitations of institutional expectations, time availability, and other factors affecting the depth and quality of relationships.

Illustrating the practical challenges of CBPR in mainstream institutions, at MU's Land of the Osages Research Farm, the consistent communication and connection required for this approach is constrained by the geographic distance between our respective communities (Osage Nation is 350 miles from MU's central campus), the temporal distance of Osage presence in Missouri since removal, and the social realities of our respective roles, knowledges, and availability to come together around planning culturally relevant research here. While there has been demonstrated interest in and commitment to moving forward together, it has been a much slower process than what I'm accustomed to in other project partnerships. The Advisory Committee meets annually, we visit individually or in smaller groups a few times a year, and in long intervals we demonstrate a durable shared connection to this place.

A focus on *place*, and a sincere reflection on the distinction between *collaboration* and *allyship*, lends itself to an approach that can be alternative or complementary to CBPR. Where CBPR explicitly aims for *shared* benefit between partners, Place-based Learning Communities (PbLCs) "support people in responding to their own needs, developing a capacity to generate their own research projects, creating supportive relationships with other actors through the building of dynamic processes for the coproduction of locally relevant knowledge" (Davidson-Hunt & O'Flaherty, 2007, p.295). In spite of the expressed directive to respond to power differentials in CBPR partnerships, equal contribution does not reflect the distribution of privilege between participants. In this way, CBPR may be effectively collaborative, but a PbLC process aligns with an allyship orientation, where a responsiveness to colonial realities means recentering a research directive to the authority of local knowledge holders and with Indigenous leadership. Like CBPR, PbLCs otherwise follow a similar procedure: identifying a shared desire or need for partnership, outlining the scope of a given project based on the PbLC's interests and capacities, and attending to accountability measures for valuing community members and ensuring data sovereignty throughout (Davidson-Hunt & O'Flaherty, 2007).

Indigenous ontologies are both relational and place-based, further supporting the need for "ethical imperatives of relational validity in research that is responsive to people and place" (Tuck & McKenzie, 2015, p.1). Though there has been a growing emphasis on critical place inquiry in qualitative methodologies (Booth, 2010; Massey, 2005; Tuck & McKenzie, 2015, and others), land-based sciences more broadly, including quantitative agroforestry studies, particularly with Indigenous collaboration or leadership, are not

exempt from the importance of place. Land-based research, which certainly describes all agroforestry research, presents opportunities for "a negotiation which must take place within and between both human and nonhuman" (Massey, 2005, p.140). The realities of these negotiations can involve consideration for place histories, reflection on researchers' relationship to land and place, and a responsiveness to the way the complexities of place affect and inform research relations. Smith et al. (2022) exemplify the deeply relational and intuitive nature of addressing the non-human or more-than-human in research contexts in their engagement of land or "Country" as co-author, whereby consent is sought through cues from the environment, seen less as a limitation than as an opening, as "invitations taking place around us, all the time… offered to us differently in relation to who we are and how we came into be(ing) here" (p.719). This involves entering with an openness about our intentions, and also a responsive subtle listening to "take heed of Country's response" (Smith et al., 2022, p.720). And even before arriving at more-than-human consent, "researcher and participants need to define their relationship with the land in order to establish their connection to the research" as inevitably informed by place and positionality (Datta, 2019, p.3).

Each of the above epistemological orientations or methodologies is consistent in that it is not prescriptive; members of a research team, collective, or community, will determine the specific approach suited to their inquiry within complex, nuanced, and sometimes messy and dynamic realities. McGregor et al. (2018) describe this as an approach to research design that is iterative, recursive, and nonlinear, in contrast with (and as resistance to) linear, dogmatic "methodologies and methods shaped through and enacted within the academy's colonizing relations with Indigenous peoples and places"

(p.2). The stories these authors share are honest in their tensions, reflecting on the insider/outsider binary of complicated positionalities and the responsibilities inherent in respecting that "Indigenous knowledge systems are not the objects of non-Indigenous research" (p.6). This translates to "braided, rebraided, or unbraided" methodologies that integrate First Voice as narrative through micro-stories and photovoice, interview as intraview, reflections on reciprocity and the lessons of plants. As Julia Ostertag notes in her contribution to the piece, quoting Judith Halberstam (2011, p.2), "under certain circumstances, failing, losing, forgetting, unmaking, undoing, unbecoming, not knowing may in fact offer more creative, more cooperative, more surprising ways of being in the world". This sentiment captures the essence of humility present throughout these stories of methodological reflection, echoed in a relational framework where "respect hinges upon a willingness to consider stories and experiences in complex, interactive ways" (Stanton, 2014, p.577).

Discussion

Agroforestry research in the US is fraught with colonizer histories and realities in higher education spaces, on public and private lands, and in all of the unseen intersections between our positionalities, pedagogies, and relationships to power and privilege. Research focused on horticultural exploitation, for overyielding with multi-strata perennial systems, is recognized for its simultaneous productivity and conservation values, often without reference to or recognition of the long histories of Indigenous land stewardship that exemplify these practices and that established foundational selection pressure for the "wild" types improved in modern breeding programs. The institutions

where our research takes place, likewise, operate from a reductionist lens characteristic of Western science, especially outside of social sciences. At the same time, there is a growing body of literature describing partnerships and collaborations between Indigenous and non-Indigenous scientists for land-based research and community-directed objectives. At institutions where there is not already a supportive intercultural infrastructure in place, agroforestry research that centers Indigenous perspectives, experiences, and applications requires collaboration that is rooted in allyship and authentic relationships and that honors and values Indigenous-informed ethical and methodological commitments.

As organized efforts for Indigenous and integrated (Indigenous and Western) science within higher education have demonstrated, a small group of people can hold space for this work where it may not otherwise be acknowledged, but essential to initiating these efforts is an Indigenous presence reflecting the ancestral stewardship of the lands our institutions occupy, mutual interest and benefits, and an acceptance or allowance of the often slower pace of relational research (and its funding, outcomes and outputs). A designated space or named project and commitments can be rooting grounds for ethical partnership. The Center for Native Peoples and the Environment (CNPE) at the State University of New York, Syracuse College of Environmental Science and Forestry, with a growing list of affiliated faculty and students, is one example of the impact this kind of designated center can have on acceptance of ontologies beyond mainstream Western science. The Center "incorporates Indigenous perspectives and knowledge for the benefit of native students and works to educate mainstream students in a cross-cultural context… focused on increasing educational opportunities for Native

American students in environmental sciences, research collaborations, and partnerships with Native American communities to address local environmental problems" (CNPE, n.d.).

A project-based partnership at the University of Minnesota focused on Manoomin (wild rice) illustrates another approach to Indigenous research partnership at a Land-grant University, including healing previous harms, in this case done through wild rice breeding efforts that had discounted Anishinaabe voices around the work (Matson et al., 2021). As co-authors relating their experience in recovering Indigenous Knowledge as an integral component of Manoomin and tribal sovereignty restoration in the research, they share "tenets for responsible research [including to] 1) Honor Indigenous sovereignty and rights; 2) Address past and present harms; 3) Be on the path together with researchers and Indigenous partners; 4) Recognize, respect, and value Indigenous participation and intellectual labor; 5) Encourage the robust exchange of ideas; 6) Recognize that documents formalizing a relationship are not the whole relationship; 7) Make a plan for identifying and protecting sensitive Indigenous data; 8) Be prepared to navigate institutional obstacles; 9) Seek, support, and collaborate with diverse students; and 10) Actively listen and be open to different ways of engaging with the world" (p.108) with direct applications within their given conditions and context (Matson et al., 2021).

Representatives from multiple land-grant universities focusing on Indigenous partnership in land-based science were also present at the 2019 Indigenous Farming Conference I was able to attend, and the experiences they shared mirror those described by Howard (2022), highlighting the importance of centering process, relationships and relationship-building, Indigenous partners' expressed needs and leadership, and research

paradigms compatible with Indigenous partners' goals and knowledges, while also instituting proactive advisory, protective, accountability, advocacy, and support structures, and acknowledging and addressing historical harm (p.120). The braided ethical and methodological frameworks presented can be used as a structure for attending to these priorities, but as the participants in Howard's 2022 interviews point out, where there is limited institutional support for training and professional development, and where inflexible bureaucratic protocols limit a necessary iterative approach, or value commodified knowledge over tribal sovereignty, institutional partners may face added barriers to engaging in culturally responsive research.

Prior to the current federal administration in the US, scientists were praised through funding prioritization and other recognition for the inclusion of Indigenous partners and participants, with a focus on Native American food sovereignty and moves to reconcile the harms of colonization. While grant proposals and their review for funding may fall short of an authentic evaluation of trusting partnerships, the opportunities this prioritization presented for healing and Indigenous leadership in land-based science and education (while currently diminished in their capacity with federal support) might now be channeled to focus on the relationships -untethered by a draw to funding- that must continue outside of individual projects and funding terms. Where there is an opening for connection, humble listening, learning, and reflexivity, long commitments to relational accountability can persist.

Some universities where Native nations are present in-state (and therefore with greater likelihood for in-person connections and research collaboration opportunities) outline institutional guidelines and protocols for collaborating with Indigenous people

(e.g., University of Montana). Their guiding principles reflect the scope of Indigenous ethics and methodologies outlined here, including that the research is Native centered, respectful, involves self-reflection and cultural humility, authentic relationships, and co-learning and ownership, honors community time frames, builds on strengths, is a continual dialogue, is transparent and accountable, has integrity and community relevance (University of Montana, 2025). At the University of Wisconsin-Madison Nelson Institute for Environmental Sciences, tribal-university partnership resources are provided as a baseline of guidance; and at the University of Washington College of the Environment, visibility and information on Partnership with Indigenous Tribes and Nations includes reference to active affiliations and collaborations at the institution, archived event recordings, project overviews, and scholarships and resources for Indigenous students (University of Washington, 2025). These examples show some of the ways institutions can and are preparing scientists to enter into intercultural research responsibly.

At MU, the distance between Osage Nation and our home campus adds to the complexity of our relationship, but institutional support need not be limited by this reality. In 2025, some MU LORF Advisory Committee members traveled to Osage Nation's capital in Pawhuska, Oklahoma for the first time for our annual advisory meeting. Since 2020, the meetings have been held virtually or at the farm site in Mid-Missouri. This is a move to reciprocate time and travel commitments, and it opens a door for deeper cross-cultural understanding. In spite of the current context of limited Native representation at MU, a small group of University staff and local residents interested in LORF can respond to this land-based opportunity for Osage reconnection here with an

informed perspective on what has led to this point, how we can learn from one another's experiences, and practice challenging our assumed Western ontologies with humility and an open mind. The pace of turnover, with new scientists regularly entering the space (as students, colleagues, or partners) may strain or challenge the integrity of intercultural partnerships that have been slowly built on trust and accountability. Enduring leadership appears at other exemplary institutions to keep relational integrity intact, but others involved must also commit to practicing sustained ethical engagement (Howard, 2022; Matson et al., 2021; CNEP, n.d.).

For scientists who have been trained within a singular Western(ized) ontology, particularly where there is not otherwise a supportive intercultural infrastructure, moves toward plurality first require introspection, critical reflection on our learned patterns and habits of mind, and the potential barriers and challenges of culturally responsive research within our institutions. This work is rarely rewarded; it can be slow, messy, and never-ending as an ongoing process of learning, critiquing, and being willing to step back to make space for other ways of knowing and doing. There are, however, a growing number of training opportunities that can assist with this process and that center Indigenous perspectives and directives. Groups that have become visible in this space in my work include the Native Governance Center based in Minneapolis, MN, and Redbud Resource Group based in California, whose "Going Beyond Land Acknowledgments" Training I attended in 2021 prompted reflection on the ways our past and ongoing actions fall on an "allyship spectrum" ranging from 'enabling erasure' to educated and impactful action. Key in this participatory workshop was a collective invitation to reflection, honest sharing, and openness to shift into contextual, relational responsiveness.

Shifting our commitments for intercultural land-based research will also require greater interdisciplinarity. A holistic account for relational ethics through reflexivity suggests that inquiries move beyond forestry or natural resources management silos, into history, sociology, critical studies, education, communication, and anthropology. This can occur through a broadening education individually, and also through partnerships, where colleagues, peers, and community members can bring their particular expertise to spaces welcoming, validating, and valuing their unique contributions. In fields that retain a positivist orientation, particularly in biophysical sciences, including agroforestry, subject-specific siloing can also be dismantled with greater integration of a social-ecological systems framework that recognizes the adaptive relationship between human interactions and ecosystem structure, functions, and services (Preiser et al. 2018). Agroforestry researchers in higher education can begin by acknowledging the complex ways humans (in place, time, and institution) are always part of a research context involving more-than-human members of (agro)ecosystems. This awareness within agroforestry research can serve to validate traditional land stewardship practices as a critical component of the ways precolonial (and ongoing) cultural practices and Indigenous perspectives are needed to inform resilient agroforestry systems today.

Academic spaces can be particularly challenging to move to this level of egalitarian partnership given cultural narratives that denote power and privilege to those who have been able to afford graduate degrees or other professional credentials. Guiding principles of Indigenous methodologies that apply to intercultural research relationships through, for example, Two-Eyed Seeing, are avenues to help redefine what knowledge and whose voices are validated in academia. For those seeking positions of allyship with

Indigenous agroforestry scientists and practitioners, humility is a central tenet at every step. This involves practicing reflexivity not just at the start, but as an ongoing process; and showing up with an open curiosity to learn from those outside of academic walls, decentering our own privileged knowledges and assumed agendas. Before there can be relational accountability, there must be relationships, mutual understanding, and trust.

Authentic relationships (between people and place) also call for reciprocity beyond notions of exchange. Reciprocity, as described by Kimmerer (2024), is defined by the quality of our relationships and a recognition that "all flourishing is mutual". This includes an honor and gratitude for the more-than-human participants involved in any land-based research (Smith et al. 2022). How are we valuing their contributions? How are we committing, in action and ethics, to the protection and sovereignty of traditional knowledges and experience as data? We can begin to unpack these big questions by opening ourselves to marginalized ways of knowing, through dialogue and reflection, and by holding ourselves and each other accountable to transparency about our mistakes, lessons learned, and processes of unlearning paradigms shaped by colonization.

Where invitations arise for allyship within research guided by place-based Indigenous directives and leadership, we can employ our privilege to clear paths within predominantly white academic spaces for bridging to more diverse ontologies and epistemologies. Likewise, where spaces can be made for Indigenous scholars to attend to culturally relevant inquiry, bridging can occur in the direction of allied non-Indigenous academics as well. This can mean challenging norms for decision-making timelines and output expectations, setting expectations for ourselves to evaluate and reconcile our relationship to place, in part, by reconnecting our land-based research with the people,

communities, and nations who carry intergenerational insights about past, current, and future land stewardship practices within human-mediated ecosystems.

Within the land area now recognized as the United States, including Alaska and Hawai'i, the federal government recognizes 574 tribes; hundreds more are not or yet to be federally recognized. Their diversity is reflective of cultural delineations that transpired over hundreds of years of adaptation through migration, trade, and seasonal movement (Whyte 2016). In spite of cultural and physical genocide and forced dislocation inflicted on them through colonization, they persist as an example of resilience. Their adaptive ingenuity, born out of a spiritually grounded relational ontology, is a reminder of the importance of openness to alternative and time-honored understandings of ecological systems inclusive of human communities; something we ought to appreciate as we face real uncertainties and dangers in a changing climate. Beyond the moral imperative of reconciliation and reparations from the histories we carry in this place, there is abundant evidence (and logic) showing the value of plurality for scientific progress (Sidik, 2022; Based on the science, diversity matters, 2025). We need not limit ourselves to a worldview carved out of colonial habits in academia; and in fact, we are doing ourselves a disservice if we neglect Indigenous perspectives, particularly as it informs and enlightens our relationships and responsibilities to the places we study.

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Chapter 2. Centering place in agroforestry planning and research: A layered geography of MU's Land of the Osages Research Farm

Abstract

The biological and physical attributes of a research site may be considered basic context in land-based agroforestry studies, and more broadly as a reference community within which the inquiry takes place. However, rarely is a more complete understanding of place focal in this work; often overlooked are the characteristics of a place affected by human interactions and management priorities over time, and a long-term view of change that can inform planning decisions and research directions at the outset of study design. This layered portrait of the place within and around what is now known as Land of the Osages Research Farm (LORF) in Gravois Mills, Missouri is designed as a case study for grounding new directions in place-based research and restoration planning. By integrating multiple spatial and temporal geographic perspectives, a more complex view emerges that reflects the interrelatedness between these parts and the dynamic nature of place. Using the concept of deep mapping as a framework for inquiry, I engage with the limitations and opportunities inherent in the applications of this depth of place-based understanding, particularly for meaningfully informing agroforestry planning and place-informed research directions at LORF.

Introduction: a wide lens on place in agroforestry research

All research happens 'in place' according to the ways researchers and their sources of knowledge are affected by their environment and community and take place within a certain cultural, historical, geophysical and ecological context (Tuck & McKenzie, 2015a). Where these influences are recognized and appreciated, the same transparency afforded by researcher reflexivity (as an inward facing consideration) can be applied to the dynamic context where an inquiry happens. Observed aspects of place including geological and ecological context, human history and human interactions with a landscape over time might contribute to a holistic planning approach by learning from past and ongoing changes, recognizing patterns, and moving towards geographically informed engagement in land-based research on/ within agroecosystems *in place*.

How do we define place, space, and land?

Throughout this chapter, I reference *place* as something more three dimensional than a specific location or property surface. In this way, my use of place is akin to Doreen Massey's *space*: "a pincushion of a million stories", "the dimension of things being, existing at the same time: of simultaneity" (Massey, 2013). Space is constituted through multiplicity and interactions, and it is always under construction (Massey, 2005, p.9). The way I present the place now known as Land of the Osages Research Farm (LORF) is inherently affected by my interactions with it and my positionality in relation to this place. Likewise, others who have been involved in informing this place narrative also bring their unique perspectives in relation to their identities and history with this land.

Acknowledging the lens through which I experience the world, as a white cis-gender woman of mixed European descent, a non-Native (immigrant by ancestry) settler inhabitant of traditional Indigenous lands now referred to as Missouri, is one part of

recognizing that “relations to place are cultivated through particular conceptions of nature, private property, and personhood” and that “the dominant epistemology of settler society provides racialized, anthropocentric, and capitalist understandings of places” (Seawright, 2014, p.554). In general, the named identity “settler” refers to anyone whose lineage is not Native and therefore (by their/our presence) contributes to the persistence of settler colonialism through displacement of Indigenous peoples. There is nuance to this binary of settler and Native identities; we might consider the myriad reasons people have arrived here and their/our multiple ancestral identities, whether as immigrants fleeing unlivable conditions, as slaves forcibly moved here against their will, and/or as someone with mixed lineage carrying any combination of these histories. Our relationships to place through our identities, cultural ties, and experiences affect the way we perceive places, and how we interact with them. “Landscapes are created out of people’s understanding and engagement with the world around them” (Bender, 2002, p.103).

In observing my positionality and opening to pluralism in my conception of place in this inquiry, I am also making an intentional choice to integrate critical place inquiry (Tuck & McKenzie, 2015a) as a relevant facet of agroforestry research and restoration planning. Critical place inquiry is “research that takes up critical questions and develops corresponding methodological approaches that are informed by the embeddedness of social life in and with places, and that seeks to be a form of action in responding to critical place issues” (Tuck & McKenzie, 2015a, p.75). In this case, the inquiry is an actionable response to the separation (in time and distance) of peoples, knowledge, and relationships from a specific place that is at a transition point for determining how the site will be managed, what will happen there and for whose benefit moving forward.

In most of my work-related interactions, talk of *land* refers to a discrete unit of property, a parcel with boundaries surveyed and archived by a recorder of deeds. In a settler colonial context, as in the United States, these property lines are recognized as ultimate law when natural resource managers are tasked with improving the quality (according to defined objectives) of land within a certain boundary. Our senses and sciences make clear, however, that property lines are irrelevant to the movement of air, water, soil, and all life that doesn't recognize or heed the meaning of a purple spray-painted line on a tree or a barbed wire fence. Natural resource managers and/as land stewards are not blind to this reality; it can either hinder or enhance the effectiveness of our actions on intended outcomes, e.g., through improved water quality impacts on a stream segment with downstream benefits, or as ongoing deterrents for unwelcome plants or animals encroaching from adjacent spaces. This view of land stewardship bounded by property is, in many cases, isolationist unless there is a concerted effort for shared values and responses, as in adoption of watershed scale best management practices. But the way property is currently defined here, landowners ultimately have autonomy to pollute or improve their land, often without recourse or reward for impacts to neighboring communities (human and more-than-human). In response to this circumstance, restoration ecologists highlight the need to attend to proximity effects (Prach et al., 2015) and to the social fabric that informs, supports, or resists restoration directions (Higgs, 2005; Wehi & Lord, 2017).

Integrating these simultaneous realities -of land as a unit of property, and of land as multidimensional space and place- I attempt in this inquiry to acknowledge the nuances and implications of both. In this way, I present *place* as inclusive of both

temporal and spatial dimensions, with interactions between the human and more-than-human, ecological and geological layers of each. I define the boundaries of the focal place at multiple scales based on available data which reflects the multiple ways we understand and relate to a place (and the concept of place), though I describe most detail within the property lines of Land of the Osages Research Farm given the realities of our scale of influence.

How can a place-based understanding contribute to meaningful agroforestry research?

Observing and relating to the sites of our research is a direct move towards a more relational approach to research that resists the reductionist tendencies of Western science. Agroforestry research takes many shapes and is often interdisciplinary in nature. In the social sciences, agroforestry studies range from human dimensions of adoption, network connectivity, and evaluation of education and training programs, to the documentation and prediction of markets and economics, and the health effects of perennial plants noted for their medicinal and nutritional benefits. Biophysical agroforestry sciences span producer-oriented horticultural aims for increasing performance of select tree crops or informing best management practices, and the ecosystem services derived from a broad set of applied practices, including soil and water quality impacts, carbon sequestration, wildlife habitat, and more. Within each of these areas of study under the agroforestry umbrella, all have some degree of social-ecological interaction and impact.

Agroforestry, as a set of practices that can support restoration objectives through the cultivation and/or tending of diverse perennial, native crops, exemplifies land stewardship that integrates responsible human interaction (back) into holistic ecological management for more-than-human benefits. In these ways, agroforestry can be practiced

with reciprocity and responsibility in our relation to land beyond a settler-colonial property orientation. Because of the nature of agroforestry practices as long-lived agroecosystems, planning for agroforestry should involve careful consideration for what the land will support, now (based on historical conditions and past land uses) and in the future (Lovell et al., 2018), given for example, predictions for climate change and more frequent extreme weather events (Abass et al., 2022), shifting or elusive markets, consumer demand, and producer adoption (Gold et al., 2004; Caruthers et al., 2024).

Complex planning tools have been developed to support this process, including the Center for Agroforestry's Handbook for Agroforestry Planning and Design, mapping tools like Canopy Compass, and economic forecasting tools such as the University of Wisconsin's Fruit and Nut Compass and the Center for Agroforestry's tree crop financial decision support tools. Together, these and others offer a framework for multidimensional planning that might be applied at a wider scale for situating a site within a broader area of influence (social and ecological proximity), and offer processes for interdisciplinary design (Lovell & Johnston, 2009). For example, a producer interested in growing pawpaws to sell in local markets will need to ensure a set of favorable conditions is in place, including but not limited to: that the land will support growth and fruiting of pawpaws, that people in their community are familiar with and interested in eating pawpaws, that their time and labor is sufficient to support the trees for the yields they expect, that severe weather events would not devastate their investments and commitments, etc.

In the same way that agroforestry planning tools account for ecological and social conditions, this chapter stresses a view of the physical and biological dimensions of land

as *part of* a more nuanced concept of place within and over time that can inform the way agroforestry practices are situated for long-term resilience. The specific bounded area (defined by the University of Missouri's ownership) this inquiry centers on is a 550-acre parcel in the northernmost part of the Ozark Highlands that is now referred to as the University of Missouri's Land of the Osages Research Farm (LORF) located adjacent to the Lake of the Ozarks -created from an impoundment of the waterway we know as the Osage River- in Morgan County, Missouri. The legal boundaries of the farm are relevant insofar as they define an area of agency. The "agents" are University of Missouri decision-makers informed by advising from a committee of 16 individuals who represent the local community (land stewards and technical assistance providers in some way connected to the place), the institution (MU) and organization (Center for Agroforestry) tasked with stewarding the site, and delegates of Osage Nation selected by Chief Geoffrey Standing Bear in 2020 to represent the tribe in this capacity. As a grounding context, this place inquiry can serve as an archival reference for the site, and also as a source of guidance from the land and its documented stories, for place-based decision making.

Who am I to be piecing together this tapestry of the place?

Currently, I am assistant director at the University of Missouri Center for Agroforestry, the group responsible for organizing and follow-through at LORF alongside the University of Missouri's Central Research Extension and Education Center leadership. Attention to activities at LORF are part of my job responsibilities, but my interest in understanding relational place-based inquiry extends beyond the applications

relevant to LORF. Transparency about my personal context reveals my deeper intentions and motivations.

My career reflects a culmination of interests and pursuits that have led to this point, beginning with a deep appreciation for the place where I live. I've spent the majority of my 38 years (as of 2025) in central Missouri, in a semi-urban landscape that, as a town of ~150,000 people, is not entirely disconnected from the ecological communities it's built on. Pedestrian trails bordered by mature cottonwoods, sycamores, oaks, hickories, walnuts, persimmons and other native trees and shrubs follow the streams we call Flat Branch Creek and Perche Creek all the way to the Missouri River. My hometown (Columbia) is situated between the Missouri River Hills and the Wooded Osage Plains ecoregions (Chapman et al., 2002). Like the Osage/ Gasconade Hills ecoregion where LORF is located, the adjacent River Hills contain karst limestone features, woodlands, and oak and mixed hardwood forests. My family has been in Missouri for less than one generation before mine; we are new here, but it is the only place I've known as home. I care for this place, and by caring for it, I seek to know it well. I see the ways we are tangibly and directly connected, through the food that nourishes my body grown on these deep loess soils, and through the years of experiences that form my memories walking the trails here, getting to know the less human-dominant landscapes and their inhabitants. In these ways, by living here, I am responsible to this place, within and beyond my academic commitments.

I have also been fortunate to become exposed to more complete (hi)stories of this place than the limited Eurocentric perspectives that celebrate colonization and development as equivalent to modernity (the predominant narrative in my K-12 history

classes). There were exceptions to this narrative, but my appreciation for "pre-history" and ecology grew more through critical curiosity, focused college courses, and field experience. Part of that education includes a more nuanced understanding of settler colonialism here, beyond the dates of treaties and removals, to the ways that "...places and our orientations to them are informed by, and determinants of, history, empire, and culture" (Tuck & McKenzie, 2015a, p.1). My privilege shows up in the education I've been able to access, and in the ways I've been able to relate to land through community farming with trees and other long-lived perennials, made possible through secure long-term land tenure. Settler colonialism, as an ongoing reality, continues to limit some and enable others in spaces of land and food sovereignty through restrictions or access to land, capital, and knowledge (Kepkiewicz et al., 2015; Whyte, 2016).

Culturally, there are less discrete ways Western colonizer axiology affects our relationship to land, place, and its inhabitants. Studying anthropology as an undergraduate student, I was deeply affected by the concept of linguistic relativity emphasized by the classic example of the Hopi language syntax that can transform our relationship to what we view as beings with agency, and even how we perceive reality and time (Sapir, 1911). The Hopi translation that struck me at that time was the difference between "the man rides the horse" (English settler syntax) vs. "the horse carries the man" (translated Hopi syntax). Language, as a central part of culture, can define the way we relate to the world and our understanding of reality (axiology), to how we learn (epistemology) and how we teach (pedagogy). My experience of culture, therefore, is a relevant reference (and acknowledgment of subjectivity) to reference in any inquiry of place and my relation to it. The Dhegiha Siouan languages connected to this landscape's

ancestral heritage are not part of my cultural familiarity, but in recognizing the distance between my cultural lineage and this geography, I aim to notice the ways my/our ontologies affect our understanding of place.

Because I have been a direct landholder only to the ⅓ of an acre around my house, I have also come to appreciate the common stewardship of collectively held and public lands. University-owned lands, in the same way, are places of shared management and collective decision-making. The University's ownership and the previous owners' deeds are the end result of a sequence of events that removed Osages from this land in the early 1800's in place of settlers who defined their homesteads according to the Rectangular Survey System that would "allow for the sale of public lands in a systematic way" (Jefferson College Library, 2021). These land losses had devastating impacts physically, culturally, and spiritually for Osages (Osage Nation, 2018), but we need not be limited to a trajectory of disparities that continues legacies of oppression from settler colonialism. Public land grant institutions like MU might in fact recognize the effects of this sequence of events not as a flaw to hide from, but as history to learn from in order to set a new course. In an isolated way, LORF decision makers can set a precedent for this direction, seeing this as an opportunity for healing through relational accountability within land-based research, and by inquiring how we can approach that healing given the systemic and institutionalized legacies of colonization.

Recognizing the potential pitfalls when "the work, the visions, seem to get caught up in jurisdictional boundaries as opposed to representing ecological sensibility" (Johnson, 2024 p.94), the purpose of a more layered view of the place, based on available information across disciplines, is to ground those involved in decision-making at LORF

in these multidimensional realities. My intention in dedicating myself to describing this place is also to model an approach to research that attends to details that are too often overlooked: the stories rooted in the landscape, the people who have contributed to its state and transformations, and the relationships that weave it all together. As a model for integrating a more holistic understanding of place in agroforestry research and to support grounded decision-making and future planning at LORF, I ask *how did this place come to be the way it is; what characteristics define the place now*; and *what can be learned from this example about the purpose of and applications for understanding place (as a dynamic social-ecological system) in land-based research planning?*

Methods

"There is a need to systematically and reflexively account for place and places in research, alongside the social position of the researcher and methods, and call for methodologies to be operationalized 'as if place mattered' (Anderson et al., 2010, p.600)" (Booth, 2014, p.20). Place-based or place inquiry and spatial methodologies have been applied across disciplines to understand how aspects of geography influence our realities, from the social (as in educational research e.g., review from Butler & Sinclair, 2020) to the biophysical, as in Geographic Information Systems data regularly used to inform natural resource management. In land use planning contexts, place inquiry can be applied across social and physical dimensions to inform decision-making, particularly where constraints of scale require narrowing focus and direction (Jankowski, 2000). MacMynowski's (2007) critique of the "conceptual rubric for ecosystem management" as lacking attention to (1) changes over time and (2) the rate and nature of social responses

to environmental changes, is of particular interest for this place inquiry of Land of the Osages Research Farm (LORF) because of the important considerations both for relevance to traditional Indigenous management practices and for adapting our planned activities to current and future circumstances.

In response to the complexity of accounting for spatial and temporal attributes, this layered place inquiry for LORF includes document review through archival searches within the Library of Congress, Missouri State Historical Society, US Geological Survey, and other publicly available sources, alongside historical narratives describing snapshots of cultural accounts and ecological features, interwoven with modern context reference from site management plans, surveys, and ecological inventories. The process of piecing together multiple aspects of what constitutes this place could be described as a quilted geography. Patterned based on what is available (which is limited compared to the fullness of the reality of this place over time), I have pulled from biophysical, social, and experiential cloths to stitch together a more relational picture of how this particular place has been shaped by and with multiple forces and conditions. This thick description of place is a kind of "deep mapping" methodology popularized by author William Least Heat-Moon's *PrairyErth (a deep map)* (1991) that "involves the accumulation and layering of different kinds of geo-locatable media…to facilitate investigations of the material, discursive, and imaginative geographies that inform our sense of place" (Gregory et al., n.d.).

Relevant scales of data were determined according to recognized boundaries of both ecological and sociopolitical features. These range from ecoregions and watersheds to political borders and property lines, none of which are entirely static or isolated. Their

interconnectedness results in a hybrid of inventorying place-based data with a narrative placing interactions between layers within time and landscape features. Determining social proximity and the boundaries of place in this case is complicated by the nature of the inquiry across cultures. Because of Osage ancestral ties (most recently prior to and during colonization) to this part of Missouri, and given intentions for LORF to be a site that honors and benefits Osages and their culture alongside local Ozark communities, the current location of the Osage reservation -350 miles from the research farm- is also a relevant proximal geographic perspective. I focus much of this inquiry on the area in and around the LORF property and ecoregions, with integrated reference to layers of the place relevant to available Osage history given its importance for informing pathways for culturally responsive research planning.

A recent biological survey conducted at LORF is a central source of present ecological characteristics. Justin Thomas et al. with the Institute of Botanical Training, completed a Floristic Quality Assessment (FQA) (Taft et al., 1997) for the entire site during spring, summer, and fall of 2024. The FQA process consisted of analysis of historical satellite imagery, LiDAR elevation models for high-resolution terrain detail, and seasonal observation to inventory species richness and to evaluate the Coefficient of Conservatism value (the C-value) for each of nine identified natural and artificial plant community types within the LORF boundaries according to the *Ecological Checklist of the Missouri Flora for Floristic Quality Assessment* (Ladd & Thomas, 2015; Thomas et al., 2025). I was able to join Justin Thomas and Nathan Aarons during one of the seasonal plant inventory visits and had the opportunity to learn their field methodology at that time. The FQA involved “systematic meanders” across the landscape, informed by a

thorough site assessment in advance of the meanders and from observations therein. Averaged C-values for a given plant community then define its ecological quality, integrity, and stability, and support an evaluation of the need for protection or restoration. These findings are complemented with a broader search for historical and ecological information alongside my personal observations at the site and its proximal geographies recorded during intermittent visits for research, field events, and educational programs.

The reference information and experience (as data) presented here was collected more slowly than most modern site planning requires, over the years since I first visited the site in 2015 and later became more directly involved beginning in 2019 through to 2024 and 2025 surveying activities. The duration of my curiosity and my position as an interested staff with the Center for Agroforestry contributed to greater access to information specific to the site, its history, and the people who hold that information. With this awareness, using purposive sampling, I invited those who have connections to past or current management, decision-making, and historical presence to share their experiences and references in conversation, via email, or over the phone, to contribute to a narrative of this place for the benefit of current and future planners and researchers (MU IRB #2105106). They were emailed an invitation with background information about the project and voluntary consent to participate, and they were given the choice to be fully de-identified from what they shared, or to be named in reference to their contributions. Each participant selected their level of confidentiality or credit at the start of our conversation. This method of gathering diverse internal and external sources of place-based data relies on a depth of relationships, connections, time, and trust. The deep mapping methodology also includes document review of site-specific materials archived

as part of public meeting records for LORF decision-making, alongside the narratives shared by those with direct connections to LORF, and public data searches accessible through US Geological Survey, US Dept of Agriculture, US Ag Census, the Missouri Department of Conservation and Department of Natural Resources, and other geographically located data of varying granularity.

My familiarity with this kind of mapped information originates in producer-oriented agroforestry planning and design work, which emphasizes its usefulness not only for academic purposes, but also for place-informed agroforestry enterprises. However, the way it is presented in this case is unique. Rather than outlining an inventory of facts and resources, I share data *in place* by inquiring within each feature of the landscape as though taking the reader on a walk, visiting distinct areas that define the place, how they came to be, and how they might change depending on future states and interactions there. The effort to situate the readers in place as though they are experiencing it themselves is in direct response to the spatial distance from the site that some LORF advisory board members face and as a way of integrating intangible resources into a narrative inventory. It is also a framing of data that embodies a respectful relationality between researcher and place, distinguishing the style from a reporting of data that can objectify place as static exploitable resources towards one that instead recognizes our role as part of the living community on this land in this particular time with acknowledgment of the generations that have come before and that will follow. In this way, it is inherently a subjective and time-stamped report, substantiated and corroborated with the experiences and references shared by individuals connected to and familiar with the landscape.

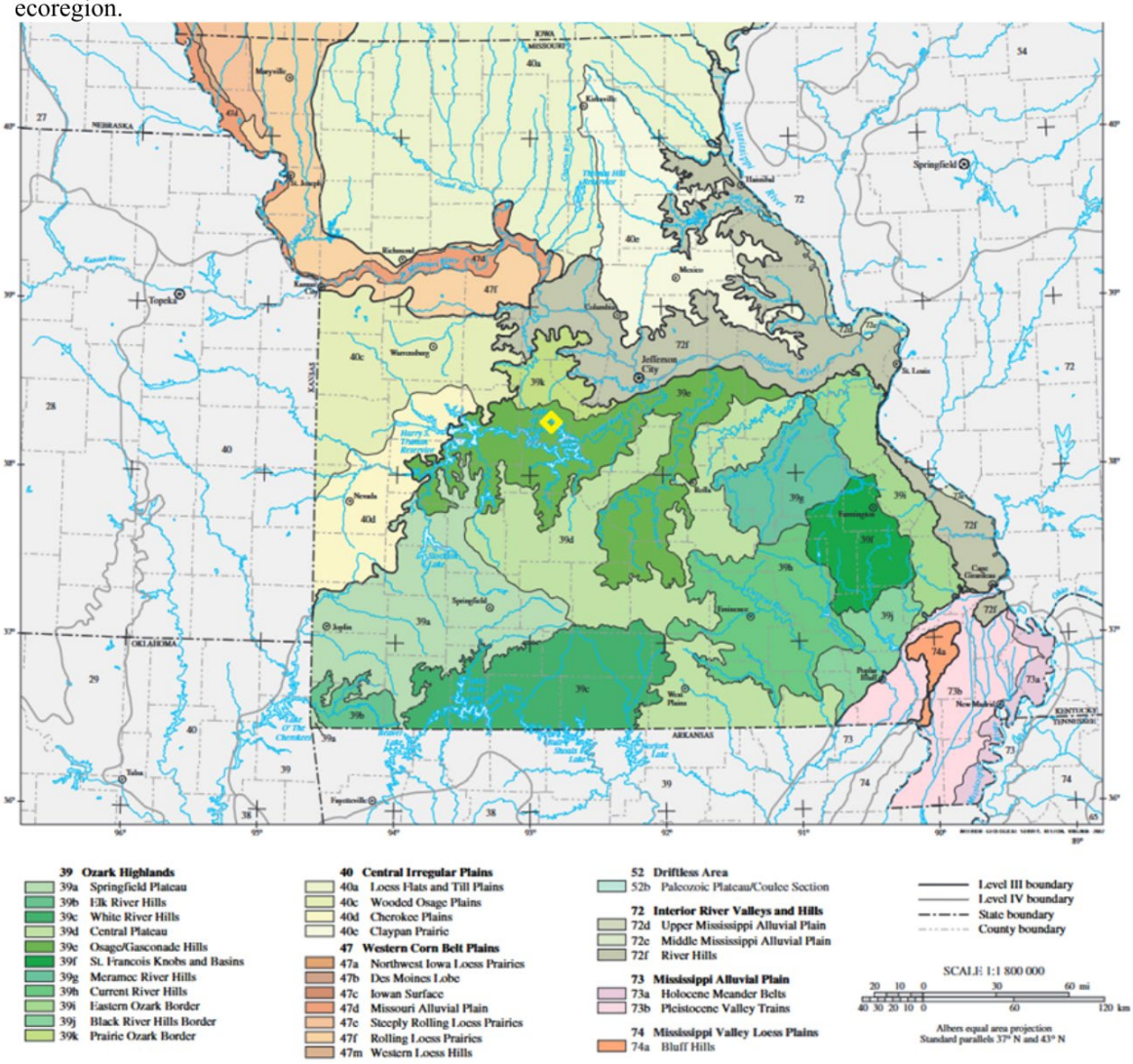
Land of the Osages Research Farm *in Place*

Situating the site within its ecological and historical context

The place currently referred to as Land of the Osages Research Farm (LORF) is a 550-acre property in rural Morgan County, Missouri, in the Osage Township between the small towns of Gravois Mills (pop. 139) to the North and Laurie (pop. 1,074) to the South. The land is adjacent to the Gravois Arm of the Lake of the Ozarks reservoir (an impoundment of the Osage River with a highly developed periphery) to the Northeast, intermittently grazed bottomlands to the Northwest, Indian Rock

Figure 1. An aerial view of Land of the Osages Research Farm, with property lines in red and visible adjacent land uses, depicting the landscape and its periphery, with landmarks.

Figure 2. Ecoregions of Missouri (Chapman et al., 2022) with the location of LORF indicated with a yellow diamond in the Osage/Gasconade Hills level IV ecoregion 39e within the Ozark Highlands level III ecoregion.



Golf Club fairways to the Southeast, and forested land with unknown management regimes around most of the perimeter otherwise (Figure 1). Affected by lakeshore development, Soap Creek watershed, within the Osage River watershed, was listed as a 303(d) impaired watershed in 2020 due to eutrophication from nonpoint source pollution (Goodin, 2024); however, LORF is located in a lower priority catchment within Soap Creek watershed. The rural landscape is situated in the Gasconade/ Osage Hills subsection of the Northern Ozark Highlands ecoregion (Figure 2, Chapman et al., 2002)

defined by its mosaic of prairie, glades, woodlands, and forests from influences of surrounding ecoregions (Nigh & Schroeder, 2002).

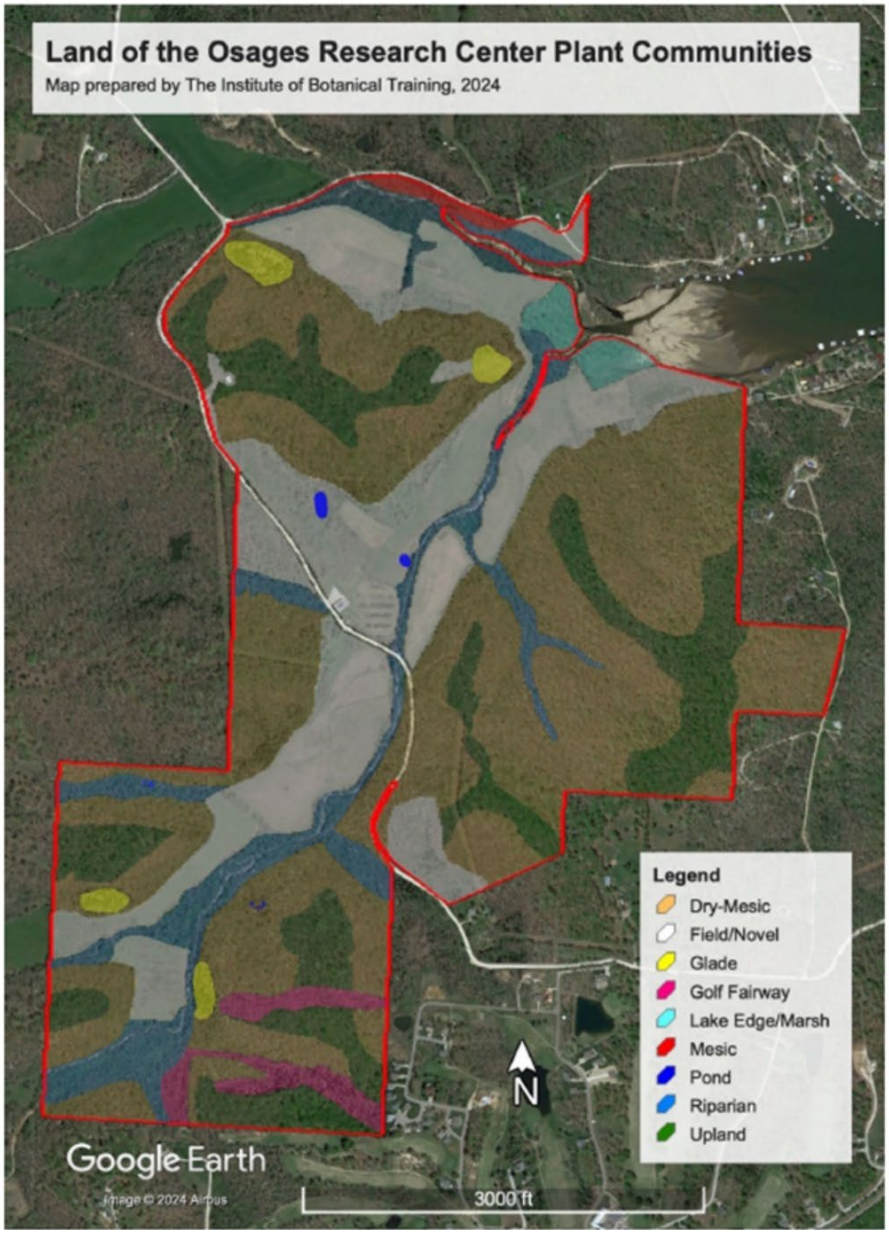
Prior to European settlement, oak and mixed-hardwood forests would have been more limited to protected slopes and bottoms. Shallow droughty soils, ruminant herds, and fire -including maintenance practices by human inhabitants- contributed to conditions for more open woodlands, oak savannas, and glades (Miller, 1972). Today the region is a mix of pasture and second-growth oak forest affected by overgrazing, timber harvests, and conversion of prairies to fescue pasture and conventional agriculture, though isolated recovery and active restoration is also taking place (Nigh & Schroeder, 2002; Thomas et al., 2025). The rugged landscape was ill suited to plantation style agriculture, so while slavery did exist in this area with heightened race tensions through the Civil War, from the time of settlement onward, the population has been mostly white (Blevins, 2023). This remains true today, where Morgan County's population remains overwhelmingly white (92.8%) with a growing Hispanic population (2.5%) in recent years as corporate agriculture businesses present new labor opportunities in the area (US Census Bureau, 2024; Blevins, 2023). The changing age demographics of the area reflect the Lake of the Ozarks as a retirement destination, with a growing population over 65yrs, and a median age of 45.4yrs (US Census Bureau, 2024).

According to the USDA National Agricultural Statistics Service (2024), the immediate vicinity around LORF is primarily listed as "deciduous forest", with areas of "grassland/ pasture" in bottomlands, and developed land in nearby Laurie, Gravois Mills, and Versailles. North of Versailles, corn and soybean production becomes more prevalent with increased acreage in grassland/ pasture. The top commodities produced in Morgan

County, by sales, are poultry and eggs, hogs and pigs, cattle and calves (USDA Census Bureau, 2024). The prevalence of animal agriculture matches the USDA Land Capability Classes for this area, much of which is below Class IV, marginally suitable for cultivation, in Class V or VI, suitable or moderately suitable for pasture/ grazing, as is much of the Ozarks region (USDA NRCS, 2024).

Representative of the landscape, the farm contains nine distinct ecological communities as described by Thomas et al. (2025) according to Nelson's (2005) terrestrial natural communities of Missouri: upland oak-hickory timbered forests along ridgelines; uneven aged dry-mesic timbered acreage (the largest portion of the land, 245 acres); calcareous

Figure 3. Land of the Osages Research Farm Plant Communities (Thomas et al., 2025)

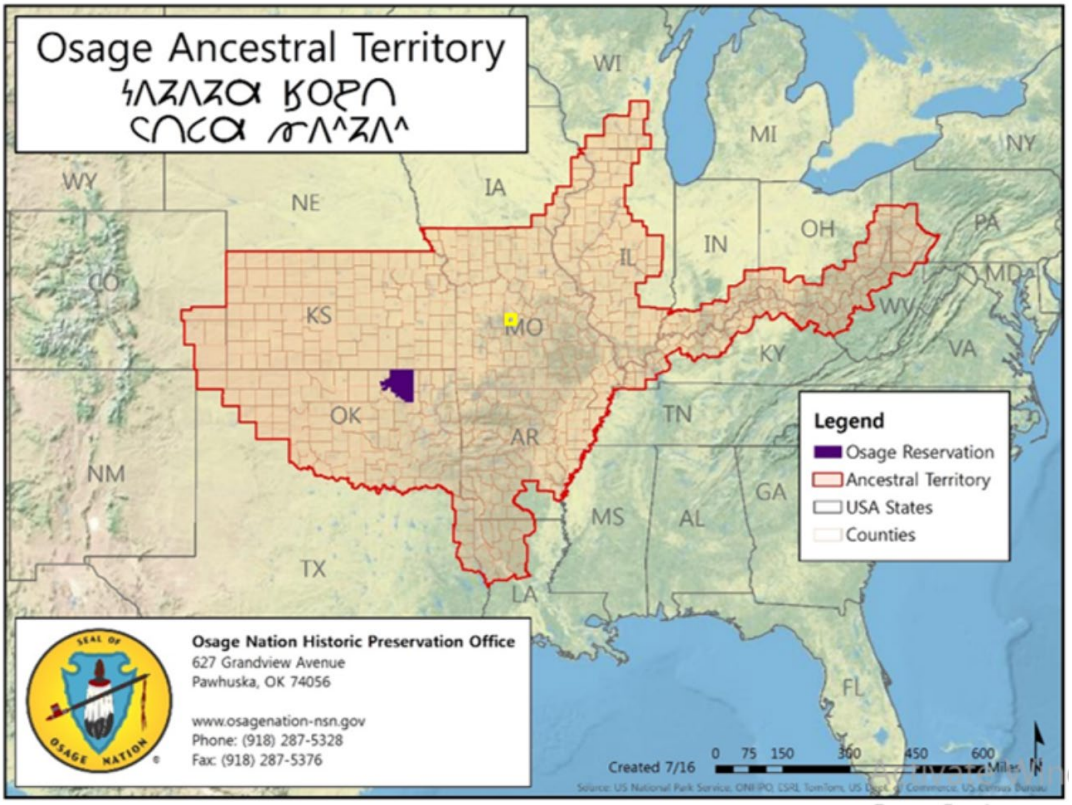


dolomite glades; a narrow band of mesic forest (a novel community for this area); open bottomland fields and other small areas maintained for human access; riparian corridors along low-lying creeks reminiscent of recovering bottomland forests; gravel bar and mudflat marsh adjacent to the Lake of the Ozarks reservoir; four livestock/wildlife ponds; and recolonized old field communities in areas previously stripped for golf fairways near the adjacent golf course (Figure 3). Each of these areas has been impacted by interactions of human and more-than-human inhabitants within and beyond the property boundaries.

In relation to relevant decision-making communities for the site, MU's central campus in Columbia, Missouri is ~80 miles away to the northeast; Osage Nation's capital of Pawhuska, Oklahoma is ~350 miles southwest of the farm. The entire area in either direction is recognized as a central area within ancestral Osage territory (Figure 4, Osage Nation Historic Preservation Office, 2009). Dhegiha Siouan speaking people, including what would later become the Osage, Ponca, Omaha, Quapaw, and Kaw tribes, lived in the Ohio River Valley ~200-500 CE before migrating towards the Mississippi River and its tributaries during what is known as the Late Woodland period, 400-500 CE. The Dhegihan people then moved north to the confluence of the Mississippi and Missouri Rivers where the Osage were among the longest inhabitants of the great Mississippian culture at Cahokia (Hunter et al., 2013). When that civilization dispersed ~1350 CE, Osages moved into the Ozarks along well-known river ways, including the Osage River that would have flowed near the LORF site. Until treaty removals in 1808, 1818, and 1825, the Osage knew and tended this land's abundance, from the hunting of bison, deer, bear, and beaver, to stewardship and harvest of native tree fruits, nuts, barks, and saps. They also continued agricultural practices predominant at Cahokia, including the

cultivation of Mesoamerican corn and beans, native squash, and other domesticated plants within the Eastern Agricultural Complex such as goosefoot, maygrass, marshelder, sunflower, erect knotweed, and little barley (Hunter, 2021; Fritz, 2019).

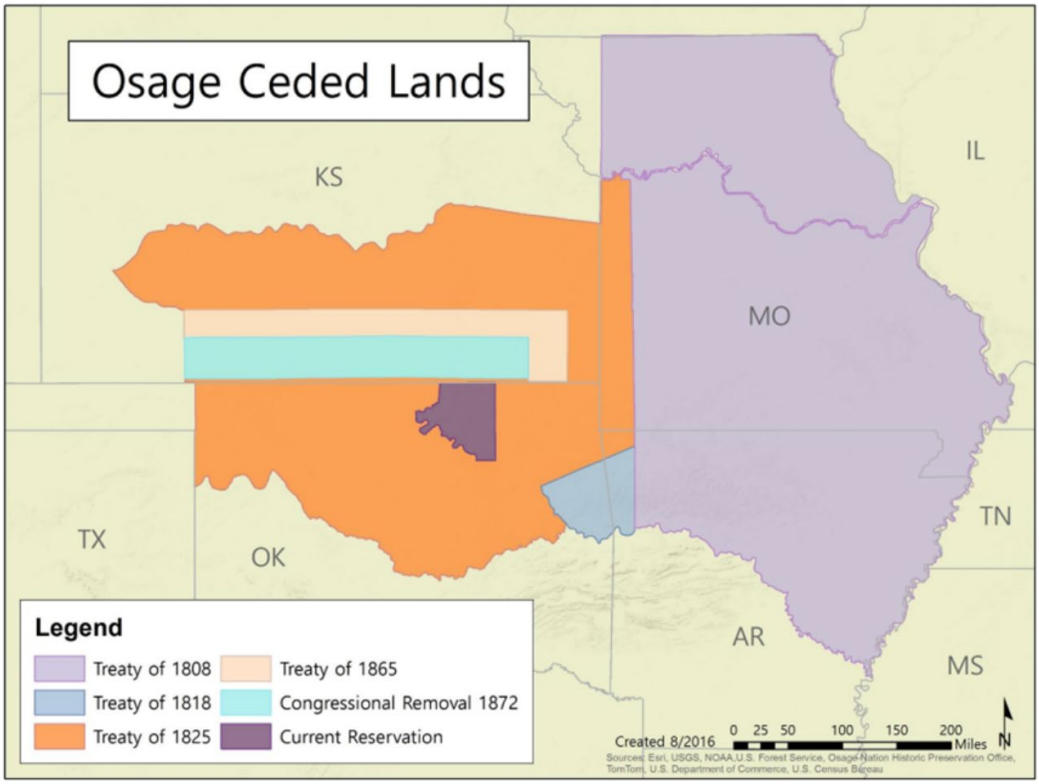
Figure 4. Osage ancestral territory map (Osage Nation Historic Preservation Office, 2016) with the location of Land of the Osages Research Farm indicated with a yellow square.



When Meriweather Lewis and William Clark traversed the Osage River in 1804-1805, they documented prospects for trade and land acquisition, namely among the Osage. French informants who had been trading with the Osages since the early 1700s contributed to their map of the "Ossage River" from the traders' 1804 map of the "Territory of the Ozages" (Moulton, 2018). As descendants of Dhegiha peoples who inhabited Cahokia at the confluence of the Missouri and Mississippi Rivers during the Mississippian period (800-1400 CE), Osages had sustained their position of power through trade and defense across a substantial geography on the woodland and prairie

plains through French and Spanish conquest and through relocation of tribes forced from their homelands farther east (Rollings, 1992; Olson, 2023). Despite that Osages were not the only inhabitants of Missouri at the time, in 1808, the US government seized -via treaty- over 50 million acres from the Osage (Figure 5) wherein Osages were to have maintained permission "to live and to hunt, without molestation, on all that tract of country" according to the Treaty (Oklahoma State University, n.d.; State Historical Society of Missouri, 2023) across much of current day Missouri and Arkansas, including these Ozark lands (Fig. 5, Osage Nation). That promise was broken, and this "public" land was gradually distributed to settlers through Acts of Congress, including the well-known Homestead Act of 1862 and lesser known Acts throughout the early 1800s whereby "settler occupants on public lands who had been in possession of and cultivated a part of his claim…could enter up to 160 acres including any improvements at $1.25 per acre" (Kirkpatrick, 1980, p.12). Revenue from the sale of lands offset debts from the Revolutionary War and not long after helped finance public land grant institutions like the University of Missouri (Lee & Ahtone, 2020; Kirkpatrick, 1980). "By the early 20th century the University of Missouri had raised over $363,000 from land that was strong-armed from the Osage for less than $700. Today, the school still benefits from nearly 15,000 acres of unsold Morrill lands" (Lee & Ahtone, 2020). The University of Missouri is among the top ten recipients of expropriated Indigenous land, with 270,613 acres received, all of which was in the state of Missouri (Lee & Ahtone, 2020).

Figure 5. Osage Ceded Lands (Osage Nation, 2018).



A brief narrative of recent engagement

The 550 acre parcel that is now LORF has changed hands many times over since settler colonization. In the available Morgan County records of deeds, in the thirty years prior to Doug Allen's purchase of the parcels in the late 1990's, at least three different land holders held the deed. The absence of intergenerational stewardship is reflected in the varying management regimes visible from historical satellite imagery (Google Earth, 2025). According to surviving descendants of previous owners, following the Bagnell dam impoundment in 1931 that created the Lake of the Ozarks and that would have flooded previous farmland, the land was also rented to short term tenants who raised animals (hogs and poultry) in a way that, by their observation, degraded the quality of the land (Sherri Cox, personal communication, August 2023).

In 2003, the University of Missouri Center for Agroforestry (UMCA) became connected to the site's eventual owner, Doug Allen, when a message was relayed to then UMCA director and MU School of Natural Resources interim director Gene Garrett about the opportunity for collaborative management to demonstrate small-scale diversified agroforestry as part of a holistic and healthy livelihood in the Ozarks (Gene Garrett, personal communication, January 2025). On early visits, Dusty Walter -then UMCA outreach staff- and Gene Garrett would join Doug Allen at the site to learn about his interests, objectives, and what he found was working well or not on the land (Dusty Walter, personal communication, October 2024).

Following safety protocols, a Phase I and II Environmental Site Assessment was completed in 2003 and "revealed nothing to indicate that soil or groundwater on the subject property [and surrounding land] has been significantly impacted by chemical or petroleum contamination from past or present site usage" (Fine, 2003). However, two mines -identified as Numbers 150 and 151 in "The Mineral Deposits of Morgan County"- which were used for galena and barite mining as early as 1874, and later reopened in search of lead in 1930, were within the property area with visible disturbance and material remnants at those sites. Soil samples from the former mine sites contained concentrations of arsenic (4.06-8.07 mg/kg), beryllium (0.826 mg/kg), and lead (596-1620 mg/kg) near or above Risk Based Target Levels, with the recommendation to prevent access for those most sensitive to risks - children under six years and expecting mothers, or to cover these target areas with gravel or mulch (Fine, 2003).

In 2005-2006, bottomland fields were converted from less desirable cool season grasses like fescue and grease grass into warm season grasses and native forbs that would

be attractive to quail and other upland birds and wildlife, as per Doug Allen's goals. In 2006, the property was endowed by Doug Allen to the University of Missouri Center for Agroforestry and became known as the Allen Research and Education Project Site (AREPS). And in 2007, a site management plan was crafted by four graduate students in an Advanced Forest Management class (FOR 8490) instructed by John P. Dwyer to better define potential activities at the site. Their "AREPS Management Plan" outlines Doug Allen's objectives with a five-year horizon for activities. It was not designed to be comprehensive, but it offered initial structure for activities that would be considered in the years that followed and documented management activities that had taken place from the time of Doug's acquisition of the land. Outlined goals included: to develop and enhance the site to sustain and protect native fauna, flora, and aquatics; to provide a location for agroforestry research and experimentation that would provide short-term income opportunities and long-term sustainability integrating trees, livestock, and grasses; to develop educational opportunities on good land stewardship for the community; to provide an inspiring showcase for the academic community that would encourage the establishment of similar sites; to generate income that would offset recurring maintenance and operating expenses; and to develop a comprehensive natural resource management plan to be monitored and evaluated for impact and efficacy every five years (Blizzard et al., 2007).

Given Doug Allen's intention for the farm to serve as a space not only for research, but also for demonstration and education, some management activities were intentionally set up to take place as part of field events. For example, in 2014, a prescribed burn on the open bottomland south of Old Eight Rd. served as a demonstration

field event and as field prep for a small-scale planting of grafted black walnuts, pecans, and Chinese chestnuts, interplanted with pawpaws, to showcase the potential productivity and aesthetic value of food producing crop trees for nearby land stewards (Gene Garrett, personal communication, April 2025). Another demonstration planting of hybrid pitch-loblolly pine trees adjacent to the barn established circa 2013 was intended to highlight opportunities for pine straw bales as a high value non-timber forest product in the Ozarks. Annual field days at what was then known as the Doug Allen farm or "Allen Project Site" resumed around 2013 with renewed outreach funding at the Center for Agroforestry to support these events. At field events, local land stewards and technical assistance providers were invited to get to know agroforestry's potential in their neck of the woods. Field days included activities such as demonstrations of mushroom log inoculation, presentations from agroforestry-related entrepreneurs in the Ozarks creating value-added products from forest botanicals, and local agency staff sharing information on conservation opportunities for landowners in the area. MU Extension staff serving Morgan County (West Central region) and Missouri Master Naturalists with the Lake of the Ozarks chapter have been key partners for these events, and their involvement is reflected in their representation on the farm's Advisory Committee.

I first visited the site in 2015, pitching in to help a Center for Agroforestry graduate student at the time, Badger Johnson, with data collection at his plots of forest botanicals on the farm, and later that year with a field event at the barn. Johnson's Master's thesis research tested the growth response of ramps (*Allium tricoccum*), goldenseal (*Hydrastis canadensis*), stoneroot (*Collinsonia canadensis*), and black cohosh (*Actaea racemosa*), under common forest management treatments with the purpose of

informing best practices for forest farming in the Missouri Ozarks (Johnson, 2017). Because the land is largely forested, and because forest farming is among the agroforestry practices most relevant to the Missouri Ozarks region, this has been a priority area since the inception of the Center for Agroforestry's involvement. Overall, demonstrating responsible land stewardship for small diversified Ozarks farm and forest landowners was central to Doug Allen's vision. In the same area where Badger Johnson conducted his research, Timber Stand Improvement (TSI) was conducted on more than 130 overstocked forested acres. Research efforts have also been aimed at responding to Ozark landowner challenges, as exemplified by a goat grazing study to measure, among other variables, the impact of targeted grazing on control of *Sericea lespedeza*, a non-native perennial legume that has proven aggressive and difficult to control on pastures across states, and that is unpalatable to larger ruminants (Harris et al., 2024).

When Doug Allen passed away in 2018, the property was transferred to the University of Missouri according to his bequest. Since then, annual Advisory Committee meetings for the farm -virtually through COVID-19 and later in-person- have maintained a slow and steady pace for next steps. Incremental archaeological surveying has prioritized areas with proposed or potential disturbance for research activities, and outreach and education events have taken place for local groups and Osage youth. Otherwise, a limited part time staff maintain the site with haying, mowing, and other assigned tasks as needed for research and events (Barry Eschenbrenner, personal communication, April 2025).

Presencing in place

Driving to the farm from Columbia, Missouri (the location of the Center for Agroforestry's offices where I work) is straightforward and bucolic, west on interstate highway 70 across the Missouri River, and south on the two-lane state highway 5 through rolling hills and past Mennonite farm stores. The landscape becomes increasingly hilly and wooded transitioning from the Missouri River Hills into the Northern Ozark Highlands. Signs of proximity to the Lake of the Ozarks are prominent in the more populated towns with fishing gear shops and lake rentals, though the surrounding land is otherwise mostly forested. Until recently, a giant "Make America Great Again" sign along that road outsized the trailer homes adjacent to it. Smaller billboards advertise nearby Jacob's Cave and Bridal Cave, tourist attractions that highlight the increased occurrence of caves characteristic of this part of the Ozark Highlands' karst topography, where visitors can walk among ancient stalactites and stalagmites along lighted walkways.

After about 90 minutes of driving, the pavement ends at the turn onto Old Eight Road from State Highway 5. Aside from a single bottomland pasture and a small creek crossing, the hilly gravel road is flanked on both sides by oak-hickory forest. At the north end of the property, on the top of a ridge, a cattle gate opens to a level drive where the most recently built structures are located on the site: a substantial well-maintained machine shed, a small tool shed, and a house. This landing place on arrival is a dwelling space with a kitchen and bathrooms, a comfortable living area and four bedrooms for overnight stays. A private well near the house supplies potable drinking water (Fine, 2003). Walking up to the door, a few persimmon trees are consistently abundant in the

fall. The immediate area around the house is otherwise mowed for access and ease of maintenance.

From this ridgetop, upland forest extends into dry-mesic forest and two small isolated glades, all within a thousand paces from the house through overstocked woods and thickets. The northernmost and largest calcareous dolomite glade is about 2.5 acres on north- and east-facing slopes. Like the other glades at LORF, the presence of eastern red cedar (*Juniperus virginiana*) trees is indicative of historic grazing disturbance and other activities that would have facilitated soil erosion. What remains is a shallow gravelly soil that supports glade obligate species that can persist in these conditions, such as butler's quillwort (*Isoetes butleri*), slender sandwort (*Minuartia patula*), low calamint (*Clinopodium arkansanum*), and flat-stemmed spike rush (*Eleocharis compressa*). It lacks, however, species that indicate greater ecological community health for this type of glade, like big bluestem (*Andropogon gerardii*), compass plant (*Silphium laciniatum*), and glade pale coneflower (*Echinacea simulata*). Despite the maturation of cedars in these glades, they are open and distinct in their glade-like plant communities and features, like the lichen-covered gray dolomite sheets of rock scattered like blankets across the open ground. Referencing historical aerial imagery from 1991 and 2021, Thomas et al (2025) suggest that the expansion of eastern red cedars in the northern-most glade is limited primarily to growth of individuals rather than recruitment. Their presence and persistence can be attributed to soil degradation and altered nutrient dynamics during a single period, from "grazing, growing season or extreme burning, and other common settlement activities that have occurred since the mid-1800s", and not from fire exclusion alone (p.20).

The smaller of the two northern glades is accessible from a path widened and mowed in 2019 for a hay wagon to take visitors to the area that opens to a view of the Lake of the Ozarks. This vantage point offers perspective for the way the land is situated adjacent to the water, what would have been a high ridge point above the Osage River prior to impoundment. At this site, eastern red cedars were entirely removed in 2019 in an attempt to restore glade conditions according to the 2007 management plan recommendations (Blizzard et al); however, the plant community assessment from Thomas et al. (2025) suggests that where these trees were removed in a single large effort, soil degradation from the clearing has contributed to poorer site quality overall, as indicated by woody encroachment of Carolina buckthorn (*Rhamnus carolinianus*) and the presence of species like common mullein (*Verbascum thapsus*) that follow soil disturbance. In contrast with recommended management for glade restoration by Blizzard et al (2007), Thomas et al. (2025) identify the presence of eastern red cedar as an isolated effect of historic soil disturbance requiring incremental removal to reduce further soil degradation; whereas Blizzard et al (2007) suggest that glades will succeed to cedar where fire is removed, and recommend the management approach taken at this glade for complete clearing of cedars to be followed by prescribed burns every 3-4 years (p.33). The quality of the plant communities observed in 2024 between these sites indicates that a period of recovery following cedar removal will be necessary given the severity of soil impact from this event, and that more gradual and less disruptive removal of cedars may limit negative impacts of the disturbance.

From this glade, a cleared path through the woods leads downhill to flat open fields. For convenience and avoidance of ticks which are in abundance here outside of

winter, accessing the bottomland fields is most convenient along Old Eight Road, which transects the property north to south. At the bottom of the valley, in the central-most part of the property adjacent to the road, an iconic barn built in the late 1800's is a recognizable landmark. Large signs reading "Land of the Osages Research Farm, University of Missouri" have been attached to the exterior barn walls to identify the place. The timber frame barn has been repaired and maintained for use as hay storage, and was outfitted in 2019 with electrical outlets and a gravel parking pad in preparation for the farm's grand opening. The barn is a unique feature on the land that remains a functional shelter and is emblematic of the recent history of the farm and the value placed on preservation at the site. In recent years, we've taken advantage of this infrastructure for field events and meetings. Pole tents with tables and chairs can be set up on the flat ground adjacent to the barn to extend the space, and the interior electrical capacity grants us the ability to project presentations, serve hot lunch buffets, and use power tools during mushroom log inoculation workshops.

Figure 6. The timber frame barn at LORF, built in the early 1800s, now serves as a sheltered event and haybale storage space along with pole tents. Photo credit CAFNR Communications (2019).

The area in and around the barn is the most accessible public event space currently available. Because it is nestled at a low point on the land, the open bottomland

fields and forested ridges are conveniently visible from that point. Just north of the barn is the Bond Family Cemetery, less than a quarter acre protected by a low gate, mowed and maintained for family descendants still in the area. Southeast of the barn, five wide rows of hybrid pitch-loblolly pine trees planted in 2013 stand as a demonstration of an Ozark agroforestry enterprise for pine straw production. Missouri is not part of the native range of either pitch or loblolly pines, but the hybrid trees are considered well-adapted to Ozarks conditions (Little & Garrett, n.d.; Baker & Langdon, n.d.; Gene Garrett, personal communication, January 2025). Pine straw is a popular landscaping mulch that former UMCA director Gene Garrett saw as a potential tree crop industry in Missouri. More valuable than a typical bale of wheat or oat straw, a single bale of pine straw retails for $15 according to Missouri Pine Straw Company (2024).

From the barn, long open fields cover the lowest lying part of the farm. Headlands along the northern edge of the field lead to a point near the Lake of the Ozarks crossing into two smaller fields in the uppermost part of the property. If, instead, you traverse the center field at its midpoint, a gravel creek crossing opens to the fields on the opposite side of the South Fork of Mill Creek, with a variable ~10-20 m of woody vegetation on either side of the ephemeral stream. In all, there are over 100 acres among eight bottomland fields divided by riparian areas and wooded hilly topography (Figure 1). The northern most field is a Moniteau silt loam described as a “wet terrace forest” ecological site; otherwise, the central fields on either side of the creek are almost entirely Cedargap gravelly silt loam indicative of a sandy/gravelly floodplain forest, with one small section just south of Old 8 Rd consisting of Jemerson silt loam - a loamy terrace forest soil (USDA NRCS, 2019). The area described as a loamy terrace forest, just south of Old 8

Rd is also where a residence was previously located (circa 1958 to 2004) and was later demolished, though no residual soil contamination risks have been identified (Fine, 2003). According to USDA NRCS Land Capability Classes, this area of Jemerson silt loam is the most suitable for cultivation (Class II) on the entire property (2024).

Responding to Doug Allen's interest in quail and other upland bird habitat creation, in 2005-2006, the fields were burned and overseeded with a mix of native prairie species (Dusty Walter, personal communication, 2024). Still, the bottomland fields have the lowest C-value (2.0) and native species richness (196 total species, 126 native species) compared with other community types on the site (Thomas et al., 2025). This level ground was likely cleared upon settlement and has been grazed or hayed for the years of living memory of its management (Sherri Cox, personal communication, 2023; State Historical Society of Missouri, n.d.); however, consistent with the gravelly silt loams and silt loam soils found in these bottomlands that characterize them as floodplain or wet forests, Thomas et al. point out that "the bulk of the fields are located in the low valleys and riparian zones which would historically have been wooded" and therefore, will continue to experience woody encroachment outside of resource-intensive haying, grazing, or herbicide treatment (2025, p.25). There is also a substantial presence of Sericea lespedeza here, a noxious weed known for its persistence against control measures. With the recognition that complete eradication of lespedeza is unlikely if not impossible, managers instead have focused on reducing its impact and spread by haying twice per year in June and September to reduce seed dispersal. MU Extension State Forage and Grazing Specialist and associate faculty Harley Naumann has also pursued lespedeza control studies with targeted goat grazing (Harris et al., 2024).

Prior to settler colonization and clearing, this area would have consisted of plant communities typical of a Missouri floodplain forest, including species documented in archaeological records for Osage use and recognized as part of the Eastern Agricultural Complex, the suite of plants domesticated in Eastern N. America prior to widespread distribution of Mesoamerican corn, beans, and squash (Smith, 2006; Hunter, 2021). In the canopy, floodplain adapted black walnuts (*Juglans nigra*), mulberries (*Morus rubra*), maples (*Acer spp*), willows (*Salix spp*), elms (*Ulmus americana*), locusts (*Gleditsia triacanthos*), and ash (*Fraxinus spp*) would have protected understory species such as pawpaw (*Asimina triloba*), elderberry (*Sambucus nigra ssp canadensis*), hazelnuts (*Corylus americana*), wild plum (*Prunus americana*), chokecherry (*Prunus virginiana*), and witch hazel (*Liquidambar stryraciflua*), with herbaceous species like maygrass (*Phalaris caroliniana*), bulrush (*Scirpoides holoschoenus*), purslane (*Portulaca oleracea*), and mallows (*Malva*) at ground level. Some of these are exactly the woody perennial crops we promote to farmers (i.e., black walnut, hazelnut, elderberry, and pawpaw) through the Center for Agroforestry's work to effectively integrate conservation onto working lands.

In May 2022 and July 2023, groups of visiting Osage high school students participating in a summer week of experiential learning at MU as part of a New Beginning for Tribal Students program (NIFA, PI: Hemmelgarn) crossed through the central bottomland field on a hay wagon to access the South Fork of Mill Creek. At the time, there was enough water flowing to pull kayaks through the shallow creek, each student navigating rocks and roots until we reached an opening into marshy wetlands on the edge of the Lake of the Ozarks. Within the site's boundaries (Figure 1) two branches

of Mill Creek flow into Lake of the Ozarks at the NE corner of the property. The creeks are incised, rocky and gravel filled with periodic flooding, and a rocky pass on each side of Old 8 Rd maintained for tractors connecting the fields NW and SE of the stream. The deeply incised gravelly creeks reflect an altered hydrology from prolonged floodplain farming, nearby development, and the impoundment of the Lake of the Ozarks.

Riparian corridors along both sides of the creeks include ruderal short-lived annuals associated with flood disturbance in the creek bed, stretching into the floodplain with second-growth forests regenerated from fallow fields (Thomas et al., 2025). The prevalence of buckbrush (*Symphoricarpos orbiculatus*) and black walnut (*Juglans nigra*) in these riparian areas suggest a history of grazing and cultivation, though walnuts may also have been selected over elm, ash, and other trees that appear to have been cut more recently. Along a section of the South Fork of Mill Creek, a planting effort in 2006 included 1,000 total seedlings of wild plum (*Prunus americana*), false indigo (*Baptisia tinctoria*), elderberry (*Sambucus canadensis*), smooth sumac (*Rhus glabra*), and rough leaf dogwood (*Cornus drummondii*) were planted as a buffer on the west side of the creek in field 2 (Blizzard et al., 2007). Many of these seedlings have since been reduced from deer browse and inadvertent mowing, highlighting the importance of long-term planning and tracking of legacy plantings. In spite of the variable degraded ecological integrity of the riparian areas, they are the most species-rich on the site (225 species, 187 of them are native), with a total mean C value of 2.9 (Thomas et al., 2025), and by observation of tracks and calls, they host turtles, snakes, frogs, songbirds, racoons, deer, and other mammals.

Pulling our kayaks through shallow water in the ephemeral creek beds at LORF, the ground below us is uneven and rocky; chert, sandstone, and limestone rocks are filled with the patterns of fossils from some of the earliest Paleozoic life in this place. Around 500 million years ago, this land would have been covered in a shallow sea nearer to the earth's equator, with trilobites, crinoids, and algae among other sea creatures growing on and living among the sediments that would become the rocks present here today (USGS, n.d.). Towards the end of the Paleozoic, the movement of land and sea level changes resulted in uplift and erosion that formed the topography of the Ozark highlands, less as mountains (which form from collision of tectonic plates) and more as eroded plateaus referred to as "The Ozark Uplift" (Blevins, 2023; Arkansas Archaeological Survey, n.d.). Life in those Ordovician sea beds contributed to the carbonate rock -limestone and dolomite- that eroded over time, creating seeps, sinkholes, and caves here (Vaughn, 2010).

Where the creek widens, a wet marsh transitions to the open lake. In the marsh, we paddle quietly through the shallow water to observe an abundance of wildlife. Under a low hanging buttonbush (*Cephalanthus occidentalis*) a green heron (*Butorides virescens*) emerges and swoops off; a brown speckled juvenile bald eagle (*Haliaeetus leucocephalus*) is perched in the top of a sycamore (*Platanus occidentalis*), red eared slider turtles (*Trachemys scripta elegans*) slip into the water from submerged branches in the sun. This cove of the Gravois Arm of the Lake of the Ozarks changes dramatically throughout the year in accordance with management of the Lake for energy production at Bagnell Dam. Thomas et al. (2025) describe this as "an ongoing disturbance…[which] has shaped an environment incompatible with the stable, ancient soils on which many

conservation species depend" (p.15). Common, generalist wetland flora persist here, including sedges (*Carex spp*.), bulrush (*Scirpus georgianus*), buttonbush (*Cephalanthus occidentalis*), halberd-leaved rose mallow (*Hibiscus laevis*) and silver maple (*Acer saccharinum*), alongside more invasive species that would have entered and will continue to enter from movement of seed and other plant materials in the Lake.

The impoundment of the Osage River in 1931 that created the Lake of the Ozarks and the Osage Power Plant was an unusually massive undertaking during the Great Depression. "Nearly 60,000 acres of land had to be acquired, and about 30,000 acres cleared of trees and brush." (Osage County 911/Emergency Management Agency [EMA], 2023). Today, the operation is considered a great benefit to the area, with 90 square miles of lake surface and 1,150 miles of shoreline tourism and recreation on Lake of the Ozarks, and with the production of "natural energy" -more than 500 million kilowatt hours of electricity each year- from the dam's turbines generated from a distance of 93 river miles between Warsaw and Bagnell (Ameren, 2025; Osage County 911/EMA, 2023). As part of Ameren's energy production management regime, the lake's water level is drawn down over winter to generate more energy during the season when demand is high, and to prepare for spring flooding (Ameren, 2025). As a result, during the colder months, the cove at LORF becomes a dry mud beach extending far into the lake.

In the summer, a clearing connecting the wet marsh directly to a northern section of field serves as a place to dock, returning to the level valley between wooded hillsides. On either side of us, these hills, with narrow ridges and valleys ~250-350' relief between them (Nigh & Schroeder, 2002) are mostly forested aside from the small glades, settled areas and small ponds. An aerial view appears more or less homogenous: a canopy of

green covers the great majority of the area, but on the ground, distinct plant communities tell a more nuanced story of influences from the topography, aspect, soil quality and bedrock, wetness, human management impacts and recovery over time. On a sunny day, differences in canopy cover can be seen and felt as dappled light filters onto the understory in areas that have been thinned, and a cool shade envelopes those areas that are more evenly covered or where the elevation and aspect create a more regulated microclimate. Using a small prism from fixed points across the landscape, foresters (in 2007 and 2024) have estimated the total basal area of each unique forest stand on the site, distinguishing these communities by their age class and species composition. Climbing in elevation, the forest community composition generally transitions from the riparian forests in the floodplain into a dry-mesic forest along varying grades of wooded slopes, and upland forest extending along ridgelines. The dry-mesic forest type covers 245 acres, more than half of the property area, and has the highest C-value (total mean C-value of 4) of the plant communities here, including what Thomas et al. (2025) identify as Mixed Oak-Hickory/ Dogwood Dry-Mesic Chert and Sandstone Forest or White Oak-Black Oak Dry Mesic Chert and Standstone Woodland (p.15).

Through multiple mass extinctions, movement of continents and shifting climates, the earliest trees emerged here ~385 million years ago and evolved into the seed-bearing trees we know today over some 30 million years and onward (Stein et al., 2020). Analysis of radiocarbon dated pollen deposits in this area prior to impoundment of the Osage River -south of the maximum extent of glacial advance ~18,000 years before present (BP, defined as 1950)- indicate that this would have been open pine-parkland ~40,000 BP to ~20,000-25,000 BP, until a shift to boreal spruce and larch forest at that time, with

associated remains of macrofauna such as mastodons, giant beaver, ground sloth, and tapir (King, 1973). These boreal forests transitioned ~13,500 BP or later to deciduous forest with changing post-glacial climatic conditions, though the sustained predominance of mast producing oak and hickory species has been associated in part with the use of fire as a selection tool by Native peoples during that time (Jurney, 2012; Nelson, 2005).

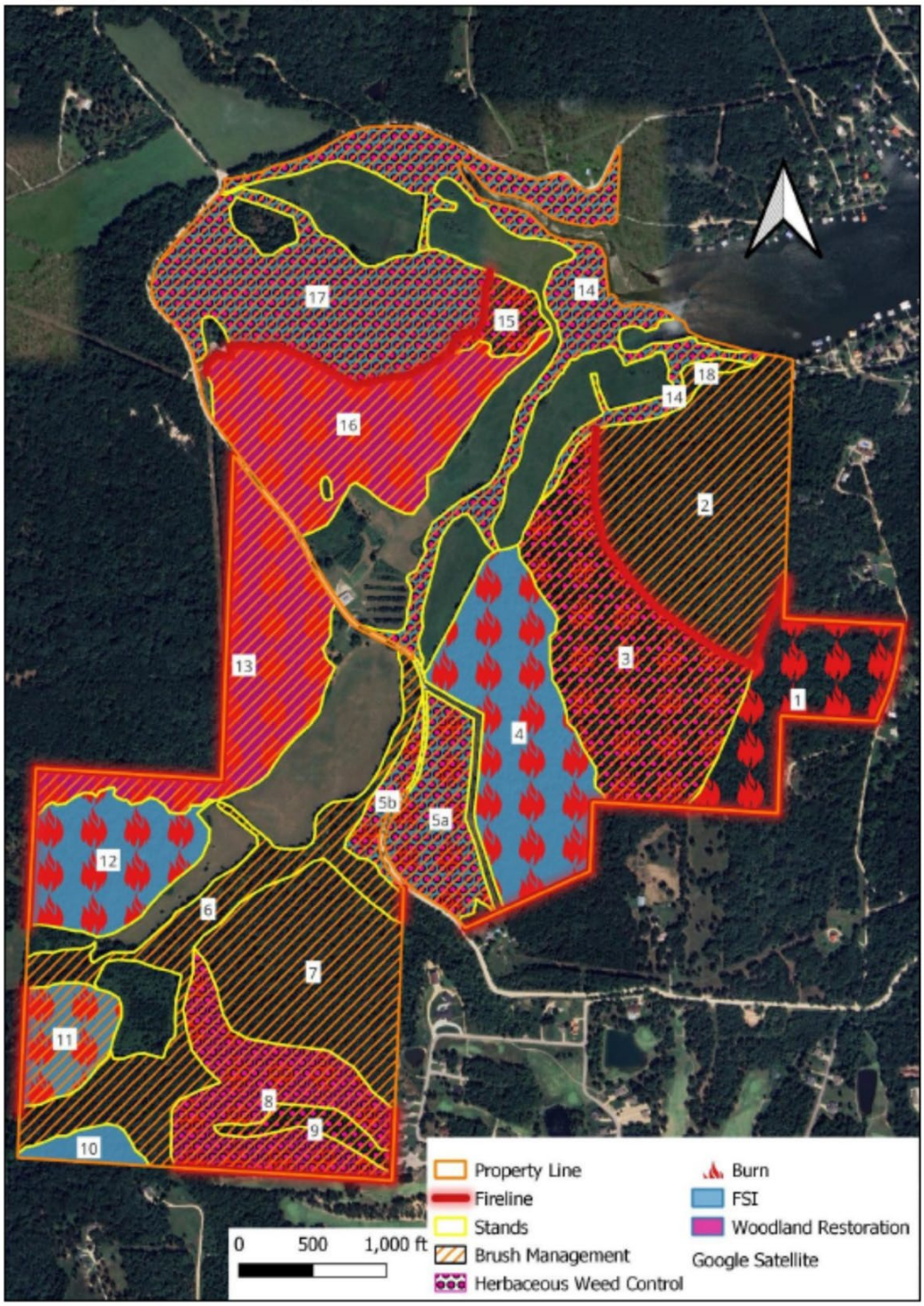
Fire as a form of management in Indigenous agroforestry, where plants and humans share mutual benefit, is characterized by more open woodlands with herbaceous understory and is well documented historically across eastern N. America, including in the Midwest Ozark Highlands (Denevan, 1992; Black et al., 2006; Davies, 1994), and actively where Indigenous nations have retained place-based cultural fire practices, as in the Pacific Northwest (Lake, 2022). Data compiled from modern vegetation reports, General Land Office records, and historical accounts suggest that the Ozark Highlands region in Arkansas increased in forest density by 2.3-2.8 times since colonization, largely from a significant reduction in low-intensity fires (Jurney, 2012). European settlers also employed fire to clear land here for cultivation and grazing. Based on dendrochronology data from Shannon County (in southeast Missouri) as populations grew throughout the 1800s, so too did fire frequency (Guyette, 2002; Vaughn, 2024). Fire frequency was and is also of course affected by natural ignition from lightning, with greater frequency during periods of drought (nine major 2-3 year droughts observed in dendrochronology records since 1700); though the modern temperate climate here averages 44-47 in. of rainfall annually (PRISM, 2025) limiting natural occurrence of fire.

Forest stand management today relies equally on cuts that can simultaneously offer harvestable timber for an economic benefit alongside improving stand conditions

for regeneration. Prescribed fire is integrated with intention of reducing the prevalence of invasive species ill-adapted to fire, decreasing surface organic matter to support diverse herbaceous vegetation, while also promoting oak regeneration (Heartland Forest Consulting LLC, 2024). The recommended frequency and intensity of fires is a nuanced topic, where Thomas et al. (2025) suggest fewer and lower intensity fires to limit holding the forests back from natural succession, having observed the detrimental impacts on floristic quality where well-intentioned prescribed burns resulted in damage from higher-than-intended intensity in difficult to predict conditions. To avoid these scenarios, a written burn plan, prepared by a certified consulting forester, Missouri Dept. of Conservation Private Lands Conservationist, or Natural Resources Conservation Service Conservationist, is required before performing prescribed burns.

The most recent forest management plan written for the property in 2024 by a group of four planners under the company name Heartland Forest Consulting LLC, provides recommendations based on the following objectives: 1) production of timber and wood products; 2) good stewardship of the property's natural resources; and 3) maintenance of a healthy forest over a ten-year period, recommending an updated plan in 2034 (p.4, 8). Timber Stand Improvement (TSI) conducted in 2015 covered 130 acres on the eastern portion of the property and was focused on release of black walnut (Juglans nigra) as a high value timber tree, in addition to support for ecological health. What results is a more uneven aged stand that supports greater ground flora diversity compared to more homogenous stands (Thomas et al., 2025). The 2024 Forest Management Plan highlights the importance of tailored practices that are responsive to site conditions by stand (Fig. 7) including low intensity controlled burns and brush management to limit

Figure 7. A prescription map, as recommended by Heartland Forest Consulting, LLC (2025) indicates forest stands that would benefit from low-intensity prescribed burns, brush and herbaceous weed management, and selective thinning.



the presence of invasive species such as bush honeysuckle, multiflora rose, and autumn

olive, and encourage native species regeneration; and forest stand improvement (FSI) and woodland restoration through targeted thinning activities.

A “loosely defined” mesic forest patch on the northernmost perimeter of the property “doesn’t fit neatly into a historical natural community type” (Thomas et al. 2025 p.14) with a combination of species indicative of soil disturbance alongside species more commonly found in more intact mesic forests. Like other areas on the landscape here, these ecological communities are a reflection of anthropogenic impacts (historical and continuing) and also a natural and assisted recovery taking place. “Recovery” suggests a return to a specific historic state, but what’s observed here could be better described as a gradual maturation towards a more stable community fitting the novel conditions created by proximal (in space and time) impacts from human development and land management activities.

Both topography and human uses for irrigation and animal management would have determined the location of the four small, ephemeral artificial ponds on the property. These still waters, present on the earliest aerial maps, total 0.8 acres, and currently serve as a unique habitat for wetland plants and wildlife. Proximity to the Lake of the Ozarks creates a seedbank from waterfowl depositing the same species present nearby on the lake, including native weak St. John’s wort (*Hypericum mutilum*), red-rooted spikerush (*Eleocharis erythropoda*), long-leaved pondweed (*Potamogeton nodosus*), and creeping lovegrass (*Eragrostis hypnoides*) (Thomas et al. 2025). Despite that conditions have greatly changed since the time of Osage hegemony on these northern Ozark waters, the anthropogenic marsh areas and ponds here are not unlike the wetland conditions of Cahokia where plants in the Eastern Agricultural Complex were cultivated during the

time of the great Mississippian culture. Osage students visiting in the summer are already very familiar with yonkapin, Tse'-wa-the, or American lotus (*Nelumbo lutea*), as a culturally significant food plant that would have grown in these ancestral wetlands (Swan, 2010), and that could grow here again for wildlife and human harvests.

At the end of our trip, we make one last stop at the house to clean up, remove ticks and wash off accumulated mud from our boots. We load trash, lock the doors, and close the cattle gate as we turn onto Old Eight Road. Leaving the farm is removing ourselves from a presence here, but not from our imaginations of what might be possible. In 2025, Osage student Shaley Boyd reflected on her experiences at LORF:

> Walking on the same ground once inhabited by my ancestors is both humbling and empowering. For me, the farm is both a reminder of that heritage, and a platform for revitalizing traditional ecological knowledge. I see LORF serving as a bridge that connects the Osage Nation, Ozark communities, and the University of Missouri – promoting shared stewardship, cultural understanding, and sustainable progress for generations to come. (Personal communication, September 2025)

Practicing place-based agroforestry research at LORF

> Wherever people live, they are part of the ecology of that place. In forested landscapes of NA, ecocultural systems emerge as people interact with place and actively shape the structure and composition of vegetation and its resilience to drought, fire, and other change-agents. (Eisenberg et al. 2024 p.20)

Seeking to understand interdisciplinary characteristics of a place and how it came to be the way it is reveals the multiple forces that shape a landscape and the long changes

over time that can be expected with altered conditions, including anthropogenic effects. Seeing this pattern, we can acknowledge the important ways researchers are also part of this human influence. We study topics based on a recognized need, and ideally, outcomes inform future human-mediated practices. A depth of place-based understanding can therefore improve our effectiveness through inquiry informed by (and affecting) both environmental conditions and social context. However, operationalizing place-based understanding for impactful research planning will require further development of process guidelines.

Recognizing the complexity of social-ecological systems decision making, Folke et al. (2005) highlight the importance of understanding ecosystem dynamics, monitoring and reevaluating the effectiveness of our actions through adaptive co-management where institutional flexibility supports collaboration across groups and disciplines. Accounting for the interplay of social and ecological change and adaptation over space and time further supports the need for continuous attention to culturally and environmentally responsive approaches (MacMynowski, 2006). Like Indigenous and collaborative research that requires context-specific awareness and reflexivity (IPSG AAG, 2010), what I propose as an opening for considering place-based research planning through deep mapping is less instructional and more an invitation to inquiry. This set of prompts, emergent from the deep mapping process presented here, can be a tool for describing place-based research considerations for (and with) relevant planners, communities, and potential PIs:

1. What has shaped the conditions and characteristics of the place and its surroundings in their current form? Consider geology, hydrology, ecology, and human interactions and impacts over time.
2. What characteristics and qualities presently define the place and surrounding areas of influence? Consider ecoregions, ecological communities, climate, human demographics, development, and engagement.
3. How will future research activities be determined and managed? Consider who are decision makers and influential stakeholders, their respective agency, capacities, and relation to the place.
4. Who and what will be affected by future research activities; how might they engage with and/or benefit from what is learned? Consider the relevance of place-based land stewardship practices and potential for research translation.

Massey (2005) proposes, "*First*, that we recognize space as the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny" (p.9). There are of course far more agents of interrelated interactions than I have included in this deep map, and each deserves its own thorough inquiry, from the influence and changes over time in hydrology, wildlife, climate, details of human activity, geologic forces, plant communities, proximal impacts from development and other land uses and the entire suite of broader ecological shifts. In isolation, they are out of context. The usefulness of understanding a place more holistically is to see the ways these parts are inevitably connected, informing and affecting each other within scales of influence.

Major influences on the LORF site that are clear at this depth of inquiry include the altered hydrology most visible from development and the damming of the Osage

River, and the ongoing impacts of colonization: the removal of Osages and other Native peoples and the rapid, substantial land use changes with settlement and farming practices. Extensive grazing, high intensity burning, logging and mining practices have made their mark. The ripple effects of these activities have and will continue to affect the conditions of the place; they cannot be undone, but by observing them and realizing their effects, we might begin to apply ourselves to a responsive biocultural reintegration to improve the social and ecological integrity of the place.

Critical place inquiry "draw[s] attention to the multidimensional significance of place(s) in social science research, not just as 'durable symbols or the distant past' (Basso, 1996, p.7), but as sites of presence, futurity, imagination, power, and knowing" (Tuck & McKenzie 2015, p.xiv). Impacts of the anthropogenic altered hydrology will last as long as human development within this energy and recreation infrastructure. Instead of attempting to revert to a previous (and inaccessible) state, we can adapt and respond within the given circumstances. Likewise, warming seasonal temperatures and more extreme weather events present new and challenging conditions within which we will be required to plan for what comes next (Johnson, 2024). Realizing desired outcomes of our future here requires us to imagine (and sense, as much as possible) the tangible realities we envision. "Instead of a predestined trend line, think of and experience the future as the living story that descendants live in, in which they describe how ancestors imagined it and then made it true. / Creation requires just that – both the imagining, and the hard work of making it true" (Wong, 2024, p35). In this way, describing ourselves in place has the potential to support envisioning future states and their nuances.

What makes this imagining complex at LORF is that its mission asks us to integrate both ecological and cultural dimensions across communities with distinct identities and geographic reference points. With the establishment of LORF as a place for research that honors the interests of both Ozark communities and Osage Nation, the site has become an entry point for connection between Osage representatives elected by Chief Geoffrey Standing Bear, Osage students, local residents, and MU faculty and staff with community and institutional connections to the farm. Navigating where our goals and interests align will require us first to become grounded in an awareness of the real potential for the site. The ways we each relate to the place and what we expect of each other there will also inform our ability to see what we can do there together, and to consider the longevity of these efforts for the land and its inhabitants past, present, and future.

The context of the farm's placement legally with the University of Missouri complicates the agency of partners, irrespective of the gravity of each person's ties to LORF as a research farm or as a place with deep cultural and ancestral significance, since MU, as owner of the property, has final authority for decision-making. Public institutions like MU are ultimately also influenced by actors at the state and federal level where public funding priorities are determined, and funding is an important factor in our capacity for activities. However, LORF is also uniquely situated financially with a modest endowment available to support its operations. All of these factors are at play in decision making for the site. Informing the practical limitations and opportunities are the perspectives of and relationships between those who have been tasked with advising our next steps.

At its most basic, “the question ‘What is land-based research?’ is an important issue for many Indigenous communities (Wilson, 2008; Tuck & McKenzie, 2016). A land-based practice can place both the researcher and participants from the Indigenous community in a position that challenges the Western style of research (Simpson et al., 2014; Wilson, 2008)” (Datta 2019, p.3). Reflection on our relation to place and to land and its inhabitants and the dynamic processes therein can be a starting place for shifting towards accountability in land-based research. If we are to move at the pace of trust and relational accountability to people and place, awareness of each other and the unfolding web of stories embedded in the landscape is not just a beginning; it is an ongoing commitment.

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Chapter 3. A Case Study of Intercultural Research Farm Development through Narrative Collage

Abstract

This narrative case study weaves the experiences and perspectives of those who are informing and affecting the outcomes of planning and follow-through for the University of Missouri's Land of the Osages Research Farm (LORF) site. Through personal and interpersonal reflexivity, conversational narrative interviews, and document review, I/we address a need for honoring complex directives within a unique land-based partnership scenario for intercultural and intergenerational agroforestry research, education, and outreach. The site narrative creates an archive of activities that have taken place leading up to and through the farm's establishment within MU's Agricultural Experiment Station. The collage of voices also reveals insights on our situational perspectives of relational accountability, towards shared understanding and culturally responsive research directions, and offers a methodology for in-depth place-based community-directed planning.

Introduction

Land-grant universities across the United States are charged with delivering research, teaching, and education that "form the backbone of a national network of agricultural extension and experiment stations" (Bickell, 2022). Much of this research is conducted on land owned and operated by the universities themselves. These farms, as "agricultural experiment stations", are accumulated by universities either as purchases or as gifts. In some instances they have been acquired through the federal government, as from the 1862 Morrill Act, or purchased through wealth gained from the sale of these properties (Lee & Ahtone, 2020). In any of these cases, university administrators are ultimately responsible for decision-making and management at these sites. Faculty and staff support these endeavors, complemented by Extension outreach efforts to engage local citizens with what's learned on these lands dedicated to public research and education. A requisite for effective agricultural research designed to have meaningful impact is an understanding of the place and people affected by and affecting such work (Kruger & Jakes, 2003), yet often there is limited information available on the history, stakeholders, and decision-making processes that take place for these public university lands to inform research and civic engagement aligned with the land grant directive.

The University of Missouri's (MU) Land of the Osages Research Farm (LORF, previously Land of the Osages Research Center, or LORC) is the most recent addition to MU's Agricultural Experiment Station (AES) sites, formally established as a university property in 2019 following the passing of the farm's owner and supporter of the University of Missouri Center for Agroforestry (UMCA), Mr. Doug Allen. The 550 acre farm consists primarily of forests and bottomland pastures typical of this part of the Missouri Ozark Highlands Gasconade/ Osage Hills ecoregion (Chapman et al., 2022;

Thomas et al., 2025). The naming of the farm for Osages, on whose ancestral lands MU sits, and MU AES leadership's recent attention to Osage and local advising, suggests a potential opportunity to acknowledge the story of this land and MU's presence here as a land-grant university with settler-colonial entanglements (Lee & Ahtone, 2020) and to create opportunities for partnership between the University, Osage Nation, and the local community through research, education, and outreach activities related to the farm, its history, and its potential. It is also unique in its location within the northern part of the Missouri Ozarks as a site for local outreach and extension efforts in an area not otherwise well represented within MU AES.

As an 1862 land-grant university, MU's establishment as a public university was made possible from the wealth of land dispossessed from the Osage with treaty removals in 1808, 1818, and 1825 (Lee & Ahtone, 2020; Osage Nation, 2018). Most of MU's Morrill Act lands have now been sold; most recently, 7,150 acres known as the University Forest were sold to the Missouri Department of Conservation in 1988 for $1.8 million (Martin, 2025). Through a series of removals by treaties and Acts of Congress, Osages were forcibly relocated from Missouri and Arkansas in the early 1800s first to Southeastern Kansas, and finally to Northeastern Oklahoma in 1871 and 1872, where their federally recognized land is located today (Osage Nation, 2018). In their place, Irish, Scottish, German, and other ethnic groups including other tribes relocated from eastern states and African American slaves brought to this continent against their will, made their homes in the state we now call Missouri. In Morgan County, Missouri, where LORF is located, the US Census reported that as of 2022, there were no reported Native American residents in the county; 93% of residents are White (non-Hispanic).

Unlike tribal colleges and universities and other visible land-based university-tribal partnerships (e.g., University of Washington, University of Wisconsin, Madison), Land of the Osages Research Farm is situated within an institution that currently offers little support for Native students and faculty outside of small student-led groups, and all-encompassing merit-based and financial-needs assistance available to any student. Students and faculty from Osage Nation and other tribes are severely underrepresented here. Among the 30,000 students at MU, only 76 identified as Native American, Alaska Native, Native Hawaiian or other Pacific Islander in 2024 (MU Analytics, 2025), representing a fraction of 1% of the student body. Currently, there are only three Indigenous faculty on MU's entire campus, none of whom are in the College of Agriculture and Natural Resources which houses the University's AES and LORF. Missouri is one of 17 states in the continental US with no federally recognized tribes. Four states that border Missouri share this status, placing us in relative geographic isolation from recognized Indigenous presence and visibility.

In 2020, MU President Mun Choi invited a group of Indigenous and allied faculty and students to create a Task Force on Indigenous Affairs at MU in order "to investigate and put forth recommendations regarding the needs of Indigenous students, staff, and faculty at the University of Missouri" (MU President-appointed Indigenous Task Force, 2024). Following the 2023 US Supreme Court decision (*Students for Fair Admissions v. University of North Carolina* and *Students for Fair Admissions v. Harvard)* that reversed affirmative action in higher education admissions, there has been a marked decrease in admissions of Black, Hispanic, and Indigenous students on campuses across the nation (Rennie Center, 2024). In 2024, "MU dissolved its Inclusion, Diversity and Equity

division amid conservative backlash against DEI" (Salsman et al,. 2025). The MU Task Force on Indigenous Affairs report and recommendations were presented to MU leadership in 2024 and received the response that "we will not be establishing any new administrative positions or assembling an advisory council. Some of the remaining recommendations would violate the 2023 SCOTUS decision and/or Title VI" (Salsman et al., 2025). Although appreciation for the effort was expressed, the years-long task force effort has not yet led to any explicit action on the part of university administrators.

The current institutional and national context surrounding this research farm, directives from its late benefactor, and the coming together of place-based partners here offers a case study for initiating culturally responsive university farm planning that can also serve to provide transparency around the history of the site, institutional processes, and clarified priority areas for research and education. Lessons learned from a LORF narrative may be useful in considering intercultural and community-informed approaches at this and other farm sites at MU and processes for which this may be considered at other land-grant universities, particularly where AES land acquisitions open the door for tribal and local community engagement.

Following the opening of the site as Land of the Osages Research Center (and later transition to Land of the Osages Research Farm amid AES restructuring in 2022), MU leadership developed a list of people with relevant interests to invite onto an Advisory Committee for the farm. The invited advisory group consists of three representatives of Osage Nation selected by Chief Geoffrey Standing Bear; two MU Extension active and retired staff who serve(d) the county where LORF is located; three nearby landowners with relevant interests; three partners with close connections to the

Center for Agroforestry, this farm, and to the specific areas of interest identified by Mr. Allen prior to his passing; and a senator and representative for that part of Missouri who have not yet attended a LORF Advisory Committee meeting. The Advisory Committee's annual spring meetings have taken place virtually (2020 conference call prior to formal Advisory Committee, 2021), in-person at LORF (2022, 2023, 2024), and at Osage Nation's Harvest Land Farm in Pawhuska, Oklahoma (2025). MU leadership, including the AES Central Missouri Research Extension and Education Center (REEC) Director, the farm's part time manager, UMCA Director, Assistant Director (myself), and business specialist also attend these meetings to report on available budget, spending and activities, and to record minutes that are shared with the group following each meeting. These meeting minutes, recordings of virtual meetings, map files and historic management plans are archived in an Outlook Teams drive shared among these advisors and administrators.

In the six years since the establishment of Land of the Osages Research Farm (2019-2025), activities have focused primarily on planning, establishing direction and essential next steps for the site during annual Advisory Committee meetings, biological surveying and initiation of cultural surveying according to directives from the Osage Nation Historic Preservation Office. An endowment distribution supports this work and farm operations, but the budget is limited in its capacity to fund simultaneous staff and infrastructure investments. A USDA National Institute of Food and Agriculture (NIFA) New Beginning for Tribal Students grant (Hemmelgarn, PI; 2021-2026) has also supported ongoing collaboration between UMCA and Osage Nation representatives through an undergraduate scholarship for an Osage student at MU and an annual week-

long summer program for Osage high school and undergraduate students that has taken place in Missouri and in Oklahoma since 2022. The LORF Advisory Committee has shared many ideas for the site, but focused progress has otherwise been limited for a number of reasons discussed here. Each person involved in these annual meetings (including myself) brings a set of stories -about the place, about ourselves, about what is possible or of interest at LORF- that inform our assumptions, ideas, and imaginations. By eliciting these stories and weaving them into a collective narrative of and for LORF, we can better navigate our direction from here, archive our challenges and successes, and move forward together at the site with clarified vision.

Why now and how: a personal narrative entry point

> As a person of timeplace, more Indigenous than not, it is unthinkable to meet people–even in written form–without first introducing oneself. How else may you know how to be in relationship to what it is I am offering? The eyes we see with, the ears we hear with, are neither neutral nor generic. Of course, neither are our thoughts or words.
>
> It would be bad cultural form to just begin without appropriate relational orientation. This is a picture of my lens so that you may orient words and thoughts in your own timeplace. (Norma Kaweloku Wong 2024 p.9)

When Doug Allen's farm was formally transferred to the University of Missouri, I was the Center for Agroforestry's outreach and education coordinator. I had first visited the farm several years beforehand, prior to starting as a Masters student at MU, while helping a friend, Badger Johnson, collect data on forest botanicals plots on the wooded

slopes at what was then the Allen Farm as part of his thesis research. I had come into the field after working as a farmer, then as a naturalist educator, and decided to bring those areas of interest together by pursuing a graduate degree in agroforestry here. Columbia, Missouri is my hometown, and I had come to realize how unique the Center for Agroforestry is as one of relatively few organizations dedicated to the advancement and study of complex perennial temperate agroecosystems. Through my Masters degree (2015-2017), creating agroforestry curriculum and training for high school agriculture science teachers, I had become deeply involved in UMCA outreach and training activities, including annual field days at Doug Allen's farm, which took place in the open field and adjacent barn on the property with ~50 attendees from the local area. We hosted presenters from groups like Missouri Master Naturalists, the Missouri Department of Conservation, MU Extension, and local producers and vendors from River Hills Harvest, Forrest Keeling Nursery, Goods from the Woods and others. The events highlighted on-farm conservation, wildlife monitoring, and value-added forest products relevant to the area. At the time, I was not aware of formal agreements for the farm to be given to UMCA, nor of Mr. Allen's interests in Indigenous peoples. The farm was a space where we could connect with the community in that part of the Ozarks and share relevant agroforestry opportunities.

In July 2018, with support from a SARE PDP grant related to my thesis research, I attended the National Sustainable Agriculture Education Association (SAEA) Conference hosted that year at the University of Hawai'i at West O'ahu. The conference centered around Indigenous knowledges and voices, decolonization, and biocultural resiliency in agroecological food systems. The Native Hawai'ian conference organizers

and participants led the group in growing awareness and relationship with hoʻōla of ʻāina, kanaka and kaiāulu (restoring and giving life to land, people, and community). This event was transformative for my capacity to see the critical importance of learning from and with Indigenous land stewards in institutional academic contexts.

Following the conference and rich conversations that took place there, I joined with a few close colleagues to submit a proposal for a small grant from the MU Division of Inclusion, Diversity, and Equity (IDE) which has since closed. The spring 2019 funded grant was written to bring "decolonizing" perspectives into the College of Agriculture, Food, and Natural Resources (CAFNR). Faculty and staff, including a Native instructor and graduate student, advised the proposal, but ultimately our plans were defined and limited by the funding allowed, and critical components of the project were not funded, including faculty training and shared meals, which affected its capacity to respectfully adhere to the original plans and to value the time and expertise of Native faculty. Through reflective evaluation including input from other faculty, we acknowledged our errors in beginning without trusting relationships in place, asking for Indigenous advising without due compensation or sufficient interest and shared benefits. In essence, through this process we became more aware of the patterns of colonization within our own thinking and behavior. The project was ultimately a humbling learning experience that resulted in first-hand understanding of the need to move at the pace of trust with meaningful valuation and integrated participatory reflective evaluation. It also encouraged me to dig deeper into the history of this institution, this place, and the ways we uphold (or resist) inequities in Western academia.

The project also supported me and an MU School of Natural Resources undergraduate student to attend the March 2019 White Earth Land Recovery Project's Indigenous Farming Conference in Northern Minnesota, where Indigenous farmers, scientists, students, and allies shared abundant examples of Indigenous food sovereignty in practice, including through partnerships at universities in the Midwest, closer to home. Back in Missouri, the MU IDE grant supported a day-long visit with Dr. Andrea Hunter, director of the Osage Nation Historic Preservation Office and MU alumna. During our time together, we met with small groups of faculty, staff, and students from MU's Four Directions Native Students and Allies, to share conversation about our respective activities with intention for Osage input or invitation for future involvement where relevant. We drove to the MU Horticulture & Agroforestry Research Center (now Farm) to tour ongoing agroforestry research activities, and ate dinner together with then UMCA interim director Dr. Mike Gold. At the end of the day, we exchanged an awareness that we would likely be working together more in the future. Unbeknownst to me then, it would've been around that time that Dr. Hunter received an email from MU Advancement asking about the naming of Land of the Osages Research Center. Shortly thereafter, planning for the Grand Opening ceremonies for the farm began in earnest, coordinated by MU Advancement Office staff.

At that point, I had initiated PhD coursework on a different topic, but in my fall 2019 research methods class writing assignments, I could not neglect my sincere interest in an inquiry related to this unfolding circumstance. That same fall, I became pregnant with my first child, and a few months later the COVID 19 pandemic arrived and upended our lives. It was an isolating time and very much inopportune for nurturing new

connections with Osage Nation. Still, I found myself asking *how we (UMCA and CAFNR more broadly) might uphold a commitment to being responsible to the lands where our research takes place; how a respectful relationship might be established between UMCA, local communities, and Osage Nation with this farm as grounds for land-based collaboration*. As actionable movements in that direction, since the 2019 research farm opening, I have initiated and sustained a National Institute of Food and Agriculture funded project that focuses on engagement with Osage youth through summer land-based programming in Missouri and Oklahoma, student support, and an undergraduate Osage scholarship in CAFNR; and I have participated in each of the farm's advisory committee meetings, first as UMCA's outreach and education coordinator, and then as UMCA assistant director beginning in 2021. My intentions in this work were and are beyond the scope of a PhD. The fuel of learning and the spark of serendipitous timing created an opportunity, however, to consider a discrete set of questions within this much broader effort.

At the heart of this inquiry is an interest in presenting the stories of those most involved with the site immediately prior to and since its establishment as an MU AES farm. These stories can serve as a historical reference, and also as a reflective compass to consider how our actions now and into the future contribute to and/or complicate our accountability to the local Ozarks community where the farm is located, and to Osage Nation on whose ancestral lands the farm is situated. With these goals in mind, the collective narrative presented here is complemented with key themes on place, process, and people that emerged in these conversations. The questions guiding this narrative contribute to piecing together a story of this unique phenomenon and time-place and to

informing our accountability to its/our histories and futures: *How did we come to this point of land-based opportunity? What can we learn from our experiences related to LORF thus far? And what values and concepts are central to our vision for the farm moving forward?*

Theory and approach

"In their endurance, stories reinforce connections with people and places and suggest appropriate actions and relationships, including with land" (Tuck & McKenzie, 2015, p.132, citing Goeman, 2013).

Narrative as storied experience

To understand the story of what has taken place related to LORF is to draw out the patterns and conditions that have made all of this possible, to reflect on our unique perspectives within the collective whole, our impressions, values, and hopes (Daiute, 2014; Alleyne, 2015). A narrative inquiry methodology centers stories, recognizing that "if we understand the world narratively, as we do, then it makes sense to study the world narratively" (Clandinin & Connelly, 2000, p.17) as an effective way of representing and understanding experience as data. In some ways, narrative inquiry can also support intercultural ontologies. Kovach (2009) suggests that, like Indigenous storywork methodologies, narrative research centers story as a legitimate source of knowledge.

As a case study of intercultural research farm development, LORF is a unique site poised for institutional, tribal, and community engagement. This narrative presents an opportunity for those who have a direct relationship with the site to be represented, and their experiences recognized as meaningful for our shared understanding (Daiute, 2014).

Narrative inquiry is a qualitative research method that honors the meaning-making nature of stories. The methodology supports a social constructivist theoretical framework which posits that our understanding of the world is subjective and derived from social contexts and interpretations (Berger & Luckmann, 2011). According to Clandinin et al. (2007), attention to three main elements is essential for narrative inquiry: 1) Temporality: there is a transitional context for reflection on past, present, and future; 2) Sociality: meaning is embedded in personal and relational experience; and 3) Place: consideration is given to the impact of place on experience (p.23). Each of these elements is central in this project. Change over time and the focus on a certain period of time (*temporality*) is reflected in the instances of our becoming involved in LORF, observing transitions over the time that we have each been connected to it, acknowledging its relevance to cultural histories that span generations, and our visions for what will happen there in the future. The nature of intercultural engagement between MU, Osage, and local representatives, and our impressions on respectful processes is a critical dimension of *sociality*. All of this is embedded within the context of LORF as a shared *place* of past, current, and/or future connection and activity.

Intercultural phenomenology

The narrative is centered around experiences of LORF as a circumstance that might be relatable, in ways, to research farm sites at other institutions where intercultural planning is required for use of discrete resources. In this way, this narrative case study is a phenomenology of the origins and directions of land-based opportunity with tribal, local, and institutional entanglements. By focusing on the ways we each became connected to it, the ways we have been active and reflective on place and process, and the

ways we envision a collective trajectory there moving forward, a picture of this phenomenon is meant to reveal lessons we can carry into the next chapter of this story that align with core values connected to people and place. Constructing a story of LORF that adequately reflects the multiplicity of our experiences and what can be learned from them requires ensuring sufficient representation from those who have been most involved with the site or who have had important roles in its development (Daiute, 2014; Alleyne, 2015), including MU administrators in various roles (past and present), Advisory Committee members (Osage, MU, and local representatives), and the most present and active MU staff.

Participatory PbLC approach

In response to the complicated structural legacies of marginalization of Indigenous and local voices and experiences in research (Smith, 1999; Datta, 2019), a Place-based Learning Communities (PbLC) approach serves as a guide for directing attention to equitable participation. PbLCs support the creation of "dialogic networks formed to generate cross-cultural understanding on local problems or events" (Davidson-Hunt & O'Flaherty, 2007, p.295). These dialogic networks of research partners support transparent communication at every stage of a community-based research effort; the research directive is responsive to a place-specific challenge and offers benefits that each partner can articulate. PbLC, similar to Indigenous scholars' observations of traditional knowledge (Wilson, 2008; Wilson, Breen, & Dupre, 2019), recognizes understanding as "dynamic, relational networks" that link researchers as/and with people connected to a place. Narrative research likewise emphasizes the importance of relationality between researcher and participant to create conditions that allow for authenticity and openness in

sharing experiences and memories within a caring community (Connelly & Clandinin, 1990). The community in this case is the group of people with significant connection to the farm's transfer to MU, activities at the site, and current decision-making.

My position *within* this community makes it possible for me to engage with participants in an authentic relational dialogue (Frank, 2012), which challenges conventional interview approaches that separate the researcher from the phenomenon and research participants. In lieu of the apparent objectivity that conventional separation aims to achieve, a participatory narrative inquiry makes our respective positions and perspectives transparent. At the same time, it is my ethical responsibility to ensure that each participant is granted control over how their contributions are presented, and that they have my confidence about anything shared between us that they request be omitted from what is ultimately included in the narrative.

Methods

Participants were identified based on purposive, relational, continuous sampling of those who are most directly connected to the farm's transfer, past and current activities, resource allocation and decision-making. Multiple voices represent each categorical group including MU administrators and relevant staff (past and present), MU- and locally-affiliated Advisory Committee members, Osage Advisory Committee members, and the MU-Osage student scholarship recipient. I have known and worked with each of these people, at least insofar as we have engaged in professional communication during annual LORF Advisory Committee meetings since 2021.

Each individual received an email invitation to participate in this narrative inquiry of LORF, including a description of the research purpose, expectations and the option for voluntary withdrawal, and a request for their selection of the degree of confidentiality they prefer (IRB Reference Number 2105106, Appendix A). They were given the option for their voices to either remain de-identified using a pseudonym in the narrative, to be recognized as a named contributor, or to be selectively de-identified combining pseudonym and named contributions for any given part of their transcript that is included in the narrative. Given that we share a relatively small community and know each other's positions in this space, anonymity within the group would be challenging if not impossible to achieve. I was transparent about this issue when presenting these options. Their invitation outlined that the semi-structured interview was expected to last approximately 60 min and could happen at the time and place of their choosing, within a given date range of three to six weeks.

Everyone invited to participate accepted the invitation. A short set of questions (Appendix B) provided enough structure to ensure that each aspect of the narrative analysis would be fulfilled. Otherwise, these semi-structured interviews were introduced as a space for conversation about experiences related to LORF. Emergent questions were more frequent than those pre-identified, and my responses providing details based on my own knowledge facilitated a depth of dialogue that would not have been possible without our preexisting connections. Importantly, my role in these exchanges was also to retain an open-mindedness and a sensitivity to allow each person to comfortably share without fear of judgment.

This type of narrative relational interview, which more resembles an authentic conversation between peers or collaborators, challenges “the conventional interview method” separating researcher from participant, which “leans toward individualistic, Westernized assumptions and theories that ignore postcolonial indigenous value systems”. Whereas “postcolonial indigenous worldviews lean toward communities’ togetherness, cooperation, and connectedness” (Chilisa, 2012, p.205). Other modifications that reflect an Indigenous worldview can include interviews with more than one person simultaneously, where a conversation includes relational perspective from within the community (Chilisa, 2012; Clandinin, 2007). While these interviews were always one-on-one, the way they are presented as an interwoven dialogue supports this ethos of communal exchange in ways that resist an individualized Western extraction of voices (Edwards et al., 2023; Davidson-Hunt & O’Flaherty, 2007; Frank, 2012). Narrative inquiry conversations are generally less structured, with pre-identified topics that may guide the conversation, where the interviewees have agency to share their voice and co-analyze interpretations of the data collected (Clandinin et al., 2007; Hultine-Massengale, 2018). In analysis, giving voice and agency to the interviewee(s) as recognized contributors or co-researchers also allows for a responsive and empowering design (Chilisa, 2012; Clandinin, 2007; Smith, 1999). In this way, results are shared not to sit on a shelf, but to serve as a constructive resource to inform practice from within, as meaningful applied research.

These one-on-one conversations with 11 individual participants took place between the fall of 2024 and the spring of 2025 in offices, cafes, on Zoom, at kitchen tables, and walking on trails. Ten of the 11 participants elected to be recognized as named

contributors, and one elected to use initials as a pseudonym. They are introduced within the narrative, and a summary of their roles and locations is provided as reference preceding the narrative.

Reflexivity

Those actively involved with the farm were also provided a set of reflexivity prompts (Appendix C) alongside the IRB exempt consent document at the time of their invitation to participate. *Reflexivity* is a practice of critical reflection about our identities and relationships to others, to processes, and to systems of power and other social structures (Call-Cummings et al., 2023). Like a physical reflex, an involuntary automatic action in response to a stimulus, our patterns and behaviors are also affected by social, cultural, and political underpinnings and experiences. A reflexive practice can lead us to see some of the sources of those patterns and to consider how these influences shape the work we do (including acknowledging and addressing biases and our unique perspectives in a research context). As such, reflexivity is rooted in ethical and transformative research commitments.

The reflexivity prompts provided to each participant active at LORF invited reflection on our positionality, our perceptions of intellectual pluralism, the biases we carry, and our understanding of applied aspects of culturally relevant research. The prompts and their sequence were informed by multiple sources that have contributed to my understanding of intercultural competencies development (IDI, 2020; Tyson & Ferguson, 2023), community-based participatory research ethics (IPSG-AAG, 2010; Tobias et al., 2013; Wilson, 2008), and aspects of positionality and reflexivity central in participatory inquiry (Call-Cummings et al., 2023). Participants were not asked to share

explicitly about their responses to these prompts, but rather to name anything that emerged in their thinking as a result of considering these questions. In some cases, those reflections were specific to a given prompt; in other cases, participants had not reviewed the prompts in advance and were simply invited to consider them during our conversation.

Increasingly, literature on reflexivity highlights its importance not only in qualitative social science research, but in any inquiry that involves people – whether as co-researchers, co-authors, or participants – in order to recognize and appreciate the ways our intersectional identities and experiences affect the way we generate questions and methods, collect and analyze data, and formulate and share conclusions (Cayir et al., 2022; Kingdon, 2005). In essence, "knowledge cannot be separated from the knower" (Steedman, 1991, p53). This invitation for reflection was also intended to address what Datta (2019) recommends in participatory place-based inquiries, that "researcher and participants need to define their relationship with the land in order to establish their connection to the research" (p.3).

Dialogical Narrative Collage

The presentation of this story shares some attributes of composite narrative. Composite narratives combine experiences from multiple participants into the telling of a cohesive story from the perspective of fictionalized characters that each represent a collective voice (Willis, 2019). In this way, the composite affords anonymity to participants in situations where it is desired, or where identification can be problematic or dangerous. A single composite character represents multiple individuals who share demographic characteristics or settings without sacrificing the depth and complexity of

their authentic stories. Because most of the participants in this narrative elected to be recognized and named, this narrative retains the element of a cohesive story from multiple voices, but lacks the need for a fictionalized collective persona. Instead, I will call my approach a *dialogical narrative collage*. Like composite narratives, this collage of voices is presented as a cohesive shared story, rather than pulling small thematic segments apart in isolation from the sequence of the story itself. It is presented dialogically by integrating voices as though in active conversation, and by focusing on "increasing people's possibilities for hearing themselves and others…to expand people's sense of responsibility in how they might respond to what is heard" (Frank, 2012, p.37). My own narration is limited to places where a connecting contextual thread is needed to understand the story sequentially, or where my voice was integrated as part of a meaningful exchange. Impressions, values, concerns and ideas that stand alone from the narrative are only extracted for discussion in the "meaning making" lessons and reflections that follow the narrative itself.

For each conversation, the audio recording (or recordings for those which took place over multiple interactions) was either automatically transcribed as a Zoom recording or uploaded into a password protected Otter AI account to generate time stamped transcripts. Transcripts with audio interference (background noise) that were not effectively transcribed using AI were transcribed manually. All transcripts were carefully checked beside audio recordings and corrected manually for accuracy, tone, and syntax before being uploaded into Nvivo for coding.

Analysis

Having familiarized myself with the transcripts through corrections, I proceeded with open and axial coding in Nvivo into major categories of impressions, challenges, suggestions, goals, values, identities, and connections. References within each category were also reviewed for relationships connecting codes to the essential research questions of *How did we come to this point of land-based opportunity? What can we learn from our experiences related to LORF thus far? What values and concepts are central to our vision for the farm moving forward?* The narrative itself reveals a storied response to these questions and confirms thematic sequencing. The discussion that follows details the relational insights that emerged from this coding process.

Through coding, I grew a comfortable memory of each conversation, after which I returned to each complete individual transcript to identify meaningful contributions to the narrative. As a guideline for evaluating relevance and placement in the narrative, I considered when in time each of their experiences took place relative to others', what additional context would be needed to frame their contributions whether through what was shared by others or with my own narration, and how each part of what they shared would contribute to a narrative that reads as a complete and coherent story. This unfolded as an additive and dynamic process of placing and moving parts until all voices were meaningfully and accurately represented.

Each participant then received an emailed document including each of the blocks of transcript from our conversation that were intended for inclusion within the narrative and an overview of the codes and themes associated only with their own contributions. They were invited to review this, provide feedback if anything needed clarification or correction, indicate if they would like any part omitted, and confirm, correct, or elaborate

on the codes and themes I had identified. Revisions were made based on their responses, and the full text provided to each upon consent from all.

What follows is a narrative collage presented sequentially and thematically with the voices of each person with whom I spoke, and at times, my own voice where relevant as narrator and as conversational participant. As a reference for each voice represented, participant names, affiliations and titles, and locations are provided below.

Table 2. Narrative inquiry participant names, affiliations, titles, and locations.

Participant name	Affiliation, title	Location
Dusty Walter	MU Central MO REEC Director	Columbia, MO
Tricia Barrett	MU Extension, retired; Master Naturalist	Gravois Mills, MO
Jann Hayman	Osage Nation Secretary of Natural Resources	Pawhuska, OK
Andrea Hunter	Osage Nation Historic Preservation Office Director	Pawhuska, OK
Joni Harper	MU Extension Natural Resources Specialist	Versailles, MO
JoAnn Billington	High school teacher, retired; Master Naturalist	Gravois Mills, MO
Gene Garrett	MU Professor Emeritus, founding UMCA Director	Columbia, MO
Barry Eschenbrenner	LORF Farm Manager	Wooldridge, MO
SJ	MU AES Director, former UMCA Director	Columbia, MO
Sarah Lovell	Former UMCA Director, retired	formerly Columbia, MO
Shaley Boyd	MU-Osage undergraduate scholarship recipient	Columbia, MO & Hominy, OK
Hannah Hemmelgarn	UMCA Assistant Director, author and narrator	Columbia, MO

A Narrative Collage of Land of the Osages Research Farm

How did we come to this point of land-based opportunity?

Beginnings, commitments, and local activity

The connections that resulted in Land of the Osages Research Farm coming to MU began with a fateful phone message, a friendship, and a responsive interest in agroforestry that grew from a directive for applied research. What would become the Center for Agroforestry at MU first emerged from the work of H.E. Gene Garrett, initially

in the 1970's, when "there were very few people in Washington that even knew what agroforestry meant, even in the USDA" (Gene Garrett, personal communication, January 2025). Central to this origin story is Gene's opportunistic approach to securing land and resources that could be dedicated to doing this research.

> **Gene**: I brought with me [to MU] five years in ectomycorrhizal research, and I fully intended to have a career in that field. I arrived here, and in about the second week, Dr. Don Duncan [then the director of MU's School of Forestry, Fisheries, and Wildlife, now known as the School of Natural Resources] called me down to his office and said, 'Gene, our forestry program is way too basic. We need to create an applied program.' He said, 'I want you to spend your first year setting up appointments with landowners and professionals to figure out what's needed.'
> I said, 'you do know I only have five years to get my tenure'.
> He said, 'that's alright, you can continue your mycorrhizal research, but I want an applied program that's meaningful.'
>
> I started in northern Missouri. I received landowners' names from professionals. I went out for interviews. And in the process, I heard about a project at Hammons Products. So I went down to Stockton and learned very quickly that oak was not the preferred species for landowners in that area; it was black walnut. Hammons Products was putting in 100 acres or so of black walnut. I immediately wrote a proposal for $35,000 to the Natural Resources Conservation Service and it was funded. That started me in agroforestry. That was 1975 to 1978 and the official name on that grant was 'walnut multi-cropping management'; that's straight

agroforestry. That's where I started, but it's a long way down to Stockton, Missouri.

I stayed with that location until 1994, when Roger Mitchell was the Dean [of CAFNR]. I decided I'm about to get a large grant, and I did. I had just written a proposal for the USDA Agricultural Research Service on agroforestry. I received $225,000 per year from that grant, and I thought we're moving in the right direction now, and it's gonna get bigger, and we can't have all the graduate students driving all the way to Stockton to do their research. So I went to Dean Mitchell. I actually first went around and looked at all the research farms, and I went in and made a proposal to Dean Mitchell that would allow my agroforestry program to go onto the land out at New Franklin. I suggested that we name it the 'Agroforestry and Horticulture Research Farm'.

The Dean looked at me and said, 'Gene, I'm getting killed right now by the horticulture people in Missouri'. He said, 'they just don't think I'm doing enough for them. Horticulture is pretty prominent in the state. I can't give agroforestry the advantage out there. Would you be receptive to Horticulture & Agroforestry Research Center?'

I said, 'if that's what I can get, that's what I'll live with.' So that's what we named it. And all of a sudden, I basically moved my research from Stockton [a 3 hr drive from Columbia] out to New Franklin [a 30 min drive from Columbia]. A lot has changed in the 30 years since then. Dean Mitchell passed away a number of years ago, but if he could see what is happening today in terms of funding for

agroforestry, I'm sure he would say that was a great decision. So that's where all of this started; it's just grown from there.

You're aware that Missouri went through a horrible 1993 flood. There was a lot of destruction and crops were lost. Around 1999 or 2000, I was helping Senator Kit Bond with his land. He had 21 acres up near Mexico [Missouri]. I called the Senator and said, 'can you get me into a meeting with the EPA director?' He said, 'yes, what are you up to?' I said, 'I'd like to write a proposal on how agroforestry can benefit the floodplain'. He said, 'well, your timing is good.' He got me in. I went to Washington and the Senator actually sat in on the meeting. I visited with the EPA and they really liked some of the slides I was showing. I had funded a project with Dr. John Dwyer looking at the value of trees for buffering levees to break up the energy of flood waves. John's data was collected in the 1995 flood, and it was pretty amazing when you looked at his dataset. The EPA director asked us to put a proposal together very quickly, and we got the funding. They didn't even blink an eye, funded to the tune of $2 million per year on a continuum. That was from 2001-2008. In 2008, I felt like we needed a bigger base. I went back to the ARS, and that's the agreement that's still supporting the Center today.

In August of 2003, I was over at the State Fair, and I'm walking down the street and I hear someone calling my name. It was Dean Tom Payne. He said, 'hey listen, Al Vogt [the School of Natural Resources director at the time] is going to retire. I would very much like for you to step in'.
I said, 'you know, right now there's a lot going on in agroforestry.' I said, 'I'd love to try my hand at being the director of the school, but I'm just not sure'.

Gene consulted his closest colleagues at UMCA, realizing that by leaving to become the SNR director, he would be leaving much of his work with the Center for Agroforestry. Ultimately, he decided to accept the offer as interim director, and he was allowed to simultaneously continue in his role as UMCA director.

> **Gene**: My very first day as SNR director, I went downstairs; the only thing on my desk was a computer, my phone, and a message that said this guy had bought some land outside Kansas City, and he wondered if the Center for Agroforestry would help him manage it. He would split the profit. So I called. He had just sold it the day before, but he said, 'Gene, I'm thinking about buying some land down in the Ozarks.'
>
> And I said, 'well Mr. Allen, give me a call and I will get people from the Center for Agroforestry to come down and help you with it'.
>
> It was 2004 when he called me back and said, 'I just bought 500 acres, mostly forested; can you help me with it?'
>
> He had had a really serious auto accident about six months before that. There was a car stopped out on the interstate in distress. Doug stopped behind it, got out, walked around to the side of the car. There was a pickup truck on the interstate that lost control, started sliding, hit Doug and knocked him into the air. He had serious injuries; they thought Doug was dead. And Doug told me when he came to, he looked around and all he could see was white. They put a sheet over him. He was still in a lot of pain on that Saturday visit with me. I spent a day with him, brought him a copy of my first book, North American Agroforestry. He said, 'I'd really like to put agroforestry out here; I'm not a conventional person. I don't

want conventional row crops. I don't want conventional pasture management'. He said, 'I'm really interested in what you do.'

Dusty Walter, now director of the Central Missouri Research Extension and Education Center (of which LORF is a part) within MU AES, was working for the Center for Agroforestry doing technology transfer and outreach when Gene Garrett first connected with Doug Allen. He and Gene worked closely with Doug in the early years of their connection.

Dusty: As Gene has told me, when he got into that office, Al Vogt had left him a note on the desk to call Doug Allen. In the conversation that ensued, I guess there was a desire from Doug to leave some form of legacy in land and opportunities.

Gene: I did not know who Doug was until Lynn Cockle, his attorney, called me one day, a year after I met him, and she said, 'Gene, I have a client who wants to leave his estate to your Center for Agroforestry.'

I said, 'who is your client, Lynn?'

'Doug Allen.'

'He's going to leave his land down at Laurie to the Center?'

'That and a lot more.'

And I said, 'Lynn, who is Doug Allen?' I'll never forget that.

She said, 'Gene, does the name Holless Wilbur Allen mean anything to you?'

I said, 'no.'

She said, 'does the compound bow mean anything to you?'

'Yeah.'

She said, ‘well, Doug Allen’s father invented it.’

And I know for a fact there was this big pause before I responded. I said, ‘are you telling me that Doug Allen is fairly wealthy?’ That must’ve been a year after I met him. Dusty and I were taking him to lunch down at Laurie fairly often. He gave nothing in our conversations that would suggest that he had anything. I figured he was in debt.

Dusty: Early on, we communicated with Doug through email quite a bit, and at least a couple if not more times a year we would get together down there and stay in the house on property and just drive around, look at things, talk about what was working, what was not working, discuss opportunities moving forward.

It was conversation at this point. Well, as is the University way, we engaged with Darcy Wells, who was in Advancement, to formalize an agreement with Doug about what his legacy and leaving to the University of Missouri might look like. The [farm] MOU and the H.E. Gene Garrett Endowed Chair MOU were ultimately outcomes from that. It met an expectation of Doug’s too, which was that, you know, he was open to a lot of different things on the farm, but he had certain goals too. The first was that he didn’t want conventional agriculture out there, and that was a bit of a moving target; Doug was somewhat of a moving target in those early years. As others brought ideas to the table, we saw over time Doug’s perspective adjusting a little bit.

Gene: The person that had previously owned the land had been running livestock and it was not a very pretty sight. So, when Doug and I were traveling around, I

remember he said, ‘Gene, I don’t want animals in my trees.’

And I said, ‘I want you to pay special attention to the silvopasture chapter in that book. If cattle are running in the woods without any management, it’s bad, but you can do it in a very beneficial way.’ He became very interested in silvopasture after that, especially with goats and sheep. Anyway, Doug and I went all the way to the south end of his property and crossed over a bridge, and there was a pure stand of black walnut with boles 10 to 14 inches in diameter there. I told Doug the future value of that stand if managed, and Doug was convinced that Timber Stand Improvement was needed throughout the wooded areas.

Dusty: He also really wanted that farm to support Ozark community. He saw the old barn on the property as being a kind of community gathering place. I remember Doug talking about music in relation to his family gatherings. I think Doug saw barn dances and people coming together with this community space. And he wanted whatever was done on the property to support Ozark small farms, and to be a kind of Ozark community support area.

Gene: Doug had a big heart for the poor. He wanted that land to be used to demonstrate to the landowners down there what you can do with less productive Ozark land. Walnut needs high quality well-drained soil; Doug wanted to show folks that walnut isn’t the only valuable species. He wanted to have, what did he call it… He said ‘Gene, why can’t we create some kind of folk festival? Why can’t we bring landowners who are qualified to help other landowners, to present to their peers?’ He said ‘how great would it be to have a Saturday event where the expertise in agroforestry is about success stories from landowners doing it?’

> **Dusty**: Legacy to Doug was also conservation of wildlife species. He had an interest in quail, so in 2005-2006 we started converting some of the bottomland fields from cool season grasses like fescue and grease grass into warm season mixes that were more friendly for quail and upland birds and wildlife. We'd get down there and talk about other opportunities while we were there.

As these visits with Doug progressed into activities on the land, the local community was invited to participate and learn. Field events took place more or less annually over the years, and involved nearby partners who later became more involved with the farm. Joann Billington and Tricia Barrett, both of whom later served as chairpersons for the farm's Advisory Committee, live close by and connected through their involvement with Missouri Master Naturalists. Joann moved to the area after retiring from a career in high school and community college teaching, and Tricia was at that time working for MU Extension as an ag business specialist after retiring from a career with USDA.

> **Dusty**: One of the first field events we hosted was a timberdoodle (woodcock) workshop. We invited the community in with the potential to maybe see woodcock and their mating flights. I don't think we saw any, but we knew they were there on property, and so it was a bit educational about their habitat needs and other things, as well as just kind of a time to have some wine and cheese with folks and talk about farm management. We also did things like controlled burns; Doug loved participating in the controlled burn workshops.

> **Joann**: For me, this goes back probably 12 or 15 years when it was the Allen Research Farm and when I first became a Missouri Master Naturalist, looking for

volunteer hours. We had the opportunity to help with a burn at the farm, and I've helped now with two or three burns at the farm and helped with planting quail habitat. I'm one of the only 'oldies' still around with Master Naturalists here who did those field days; there's been turnover.

Tricia: I've been active in the Lake of the Ozarks Missouri Master Naturalists really since we moved to the area in 2013. Around that time, Gene Garrett, Dusty Walter, and others were actively having field days here at this site, and Doug Allen would often participate in them. It was probably 2014 or 2015 we participated in activities to show the natural habitat of this site. Dusty conducted a prescribed burn; Gene Garrett talked about alley cropping and loblolly pines; I think Bob Pierce talked about bob white quail habitat. And we took tours talking about timber management and various things like that. I did one educational session here about ag business and how to make a sustainable business with forest products. We did that around a campfire; that was during my career as an Ag Extension agent and as a graduate of the Center for Agroforestry's Training Academy. They did some good outreach and engagement type activities over the years to help interested folks in the area learn a little about this and respect it for what it is. I've come out here to look at raptors and eagles. I've come out here to do bumblebee surveys.

Dusty: When you look at the field days and other things that take place there, I don't know what the radius is that people come from, but I would consider them mostly local. I think that's right on target with what fulfills Doug's wishes down there, as does the relationship with Osage Nation.

> **SJ**: Having the property there opened up many doors for us. Of course, one of them is connecting with the local community, which we did even while Doug was alive. I was a big proponent of doing field days, and we continued that every year. I saw Doug's passion to connect with the local communities because he strongly believed that the landowners couldn't make a living just on the trees alone. It's not a productive landscape. So he was looking to see, could they make money from medicinal plants, his passion. And there is a market for it, but at the same time, can you cultivate them in that region like a crop underneath the forest canopy? That's why we wanted to bring out the community to showcase some of these opportunities.

Another local Extension agent, Joni Harper, also came to know and appreciate the farm through the field events hosted there, and like Tricia Barrett and Joann Billington, she brought an existing knowledge of the local area and its residents and also later served on the LORF Advisory Committee. All three women have now served as Chairperson for the committee.

> **Joni**: After I went through the Agroforestry Training Academy [in 2017], then periodically there would be spring workshops down there that I would go to. What I really liked about it is, first of all, it was kind of in my backyard. I live about 40 minutes away, but from my office in Versailles it's just 15 to 20 minutes to get there. That's where I'm headquartered. When I first started, Sherri Cox, whose grandfather built the barn there on the farm, she drove me around the county and introduced me to people and talked about different places. So I knew about it beforehand. I also liked that it was kind of a blank canvas, like here's our

typical Ozark land, and what can you do with it? It's a beautiful site, and how can we welcome people here and educate them? I really enjoyed that; that was my first impression.

Tricia: [At the field events] Doug would talk about his experience and his life goals for this site, which I revere and took to heart. I remember like it was yesterday, he felt like this was a place where research could be done into all of the different native plants that coexist and have become part of this landscape, their medicinal properties, and he wanted to see research done on that subject matter.

Dusty: I was probably closest to the farm while Doug was alive and while I was with the Center for Agroforestry because it was under the Center for Agroforestry umbrella. We would have these long conversations over a cigar for me and lots of cigarettes for him, and I'd learn a little bit more as these late night sessions would happen with him. It was interesting to get to know him. Some of his perspective on that land for conservation was based in a lot of hunting that he and his family did growing up and being outdoors. We also traded a lot of books, and I have a lot of books on my shelf about Native American medicinal plants given to me by Doug just because he was so interested in herbal medicinals and alternative medicine. He was a healthy mix of interesting.

Doug's interests and objectives for the farm and its endowment were described in some detail in the Memorandum of Understanding between Douglas T. Allen and The Curators of the University of Missouri finalized in 2005. The "four primary goals" outlined for his gift were (1) maintaining the Allen Project Site, (2) providing a location

for research and experimentation, particularly in methods of agroforestry that will help foster forest wildlife, (3) providing educational opportunities for the community surrounding the Allen Project Site, and (4) providing a showcase for academic communities" (Allen & Curators of the University of Missouri [MU], 2005).

Within these goals, Doug's view of the land and its inherent purpose and functions is clear. "Douglas T. Allen believes that much of the value of the land that will become the Allen Project Site [later LORF] is attributable to the diversity of natural flora and fauna found on the land… It provides an excellent opportunity to study flora and fauna interactions and to demonstrate management options for profit and sustainability" (Allen & MU, 2005, p.2). The Center for Agroforestry is tasked with "managing the site and directing research and education activities", and explicitly "*not* for pure agricultural research, such as projects involving conventional row crops and livestock" (Allen & MU, 2005, p.3). The site is also intended to be "managed to generate income through harvesting timber, production of botanicals, etc." to support "research, education, technology transfer, grounds maintenance, and community programming" (Allen & MU, 2005, p.3). With the exception of certain "'proven' exotics such as chestnut, which has value to the family farm", the preservation and enhancement of native species diversity is prioritized, as is research and demonstration of "nonconventional land-use practices that conform to the philosophy of agroforestry, such as integrating land-use management systems for optimal production and conservation benefits" and "if appropriate", for disciplines such as archaeology and paleontology, "with the understanding that the land will be disturbed as little as possible and restored…when such projects are completed"

(Allen & MU, 2005, p.4). Buildings supporting this work are intended to provide infrastructure “designed to adapt to multiple purposes”.

Also emphasized in the MOU is that Doug’s gift should be used to provide stipends for graduate and undergraduate student involvement in research at the site, and that this research should be accessible to the community, sharing in the benefits of what is learned through demonstrations, festivals, hands-on workshops, and sustained interaction. In these ways, the site is to be “seen as a place to live” with “harmonious balance between the domestic and the wild, and between utility and beauty”, and as a showcase for other institutions of higher learning (Allen & MU, 2005, p.6).

In accordance with Doug’s intention for a management plan to be developed for the site, in 2007, John Dwyer’s graduate-level advanced forest management class undertook the task. The students met with Doug, toured the property, and ultimately presented a set of recommendations based on his goals and the capacities of the land and its resources (Blizzard et al., 2007). As Dusty Walter described, the effort was also an integration between teaching and research elements. Recognizing the need for a full-time project site manager and relevant facilities, an optimistic timeline of activities for consideration in the plan includes:

1) Design, implementation, and monitoring of riparian forest buffers, wetland systems, forest farming including small scale shiitake and botanicals cultivation, and alley cropping activities with native nut tree crops, with economic evaluation of production-oriented activities;

2) Natural history review for ecological restoration, and creation of an inventory of botanicals for use in a herbarium;

3) Infrastructure establishment including access roads, woods roads and trails, and water crossings, equipment storage, and permanent parking areas;
4) Development of a flexible timber management plan and continuous forest inventory system;
5) Design of an educational botanical garden, creation of informational brochures about the site, and offerings of short courses, workshops, and/or internships.
Those who became connected with the Center for Agroforestry after Gene and Dusty had become friends with Doug Allen were made aware of the potential gift, and activities centered around fulfilling Doug Allen's goals for the site to serve as an Ozark agroforestry demonstration and research site.

> **SJ**: I knew about it [the farm] even before I came here, because when I was recruited to come into the job as director for the Center for Agroforestry this was one of those exciting potential farms where we could do all sorts of agroforestry demonstrations. Even when I got the first call from Gene Garrett asking me to consider this opportunity, he was talking about the Horticulture & Agroforestry Research Farm, but he also talked about this exciting opportunity coming up. It's a blank slate. We can do all kinds of demonstrations to help the Ozark communities. So I was extremely excited about it. I didn't know about any Osage Nation connection then; it was simply a potential farm that would come to the Center for research and extension.
>
> When I interviewed for the job, there was a big snowstorm and Doug couldn't travel, so I talked to him over the phone. He invited me to visit the farm, and I did come back. When I got the job [in 2009] that was one of the very first trips I took,

to go visit the farm with Doug, and he explained his vision and his desire to make it another farm like HARF. That's the way he explained it, but it was obvious that he was also into medicinal plants research, something that we did not really do at HARF back then.

Dusty: Before the farm became MU property, Doug had put money into a little gift account. Gene and I were very conservative about spending his money. Even though the funds were in a gift account, it wasn't University property yet, so we couldn't spend that on any capital goods that went out there on a property that wasn't ours. Everything from land management to improvements on the house or anything like that, we were just very conservative about our approach since we were essentially spending his money.

SJ: Doug wanted to begin research right away because he was putting in funding and Gene and Doug and Dusty, they were already planning multiple demonstrations at the farm. It may have taken a few years, but we planted a small demonstration with pecans, chestnut, and black walnut. Before that, they had restored some of the fields to native warm season grasses for creating habitat. And then of course we also planted pitch-loblolly pines right next to the barn. That was meant to be a kind of alley cropping demonstration. We had switchgrass planted in the alleys and we collected some biomass data, although we never published any of that. The pine trees were young then, but the idea was to look at the baseline and the change over time with the switchgrass. We never finished that project because I lost the post-doc, and that was pretty much the end of it.

Gene: If you go all the way to the south end of the property, we had actually started a planting down there with grafted walnut, pecan, and chestnut. I went down there a year or so ago. It's an absolute jungle, but we do have a deer fence around it for protection from browse. We actually brought in Jimmy Lovelace, who had a consulting firm. I had him lay out nine long raised beds with thirty feet between them and we planted on top of berms. It's a five acre field, good bottoms; it really is a good site. It has the potential to demonstrate what landowners can do with small pockets of good soil.

SJ: The other big project was Badger [Johnson]'s, as you know, because Doug was extremely interested in doing something related to medicinal plants. That was his passion, especially native medicinal plants, so we were looking for someone to do that kind of project, to keep Doug happy and stay active while he was supporting this work. This was our way of showing that yes, we can do these things, and you can see that these are the potential research opportunities on the farm. So for Badger's project, we thinned the canopy at three different light levels in a small area on one of the slopes and then planted four different native medicinal species: ramps [*Allium tricoccum*], black cohosh [*Actaea racemosa*], goldenseal [*Hydrastis canadensis*], and stoneroot [*Collinsonia canadensis*]. Badger looked at how they survived and grew over time based on light levels in the canopy.

We collected data from that project over two years. Badger completed his thesis, but the manuscript was never published. He also had an unpublished manuscript based on existing datasets for medicinal plants overall in the Ozarks; that work is

> in his thesis. We took Doug there to show him during one of the field days. And of course, it was an effort to show him these are the kinds of research we can do here that aligned with his vision for this to be the Ozark demonstration of agroforestry, showing landowners in the area that you have another way to make income with these poorly productive lands.

In spite of challenges sustaining projects at the site with the transience of students and funding and the movement of people across positions within MU, those with a relationship to Doug Allen not only continued that connection, but also shared the significance of Doug's gift with those in relevant incoming roles.

> **Dusty**: Even though in 2011 I left the Center for Agroforestry staff and became superintendent of Wurdack Research Farm, part of my role was still to communicate with Doug and keep talking about that property and doing things down on that property. Shibu Jose, who had been director of the Center for Agroforestry had transferred, moved into the SNR director's office by then, but they were all supportive of Doug and what his potential gift might mean to the University. So I believe my contact was a way of keeping some continuity in the conversation as somebody Doug was familiar with.

Transitions & formalized connection

In 2017, Doug Allen died suddenly and unexpectedly of a heart attack, not long before Dr. Sarah Lovell interviewed for the UMCA director position in 2018. Dr. Lovell was the UMCA director from 2019 to 2022, during the transfer of the farm to MU, the Grand Opening, and the organizing of an Advisory Committee for the farm.

> **Sarah**: I first started hearing about it [the land promised by Doug Allen] even before I knew the Center for Agroforestry director position was going to be available. I had a few conversations with Mike Gold [then interim director] at a meeting or two maybe in 2017, about Doug and some of the thoughts on what he had planned for the site. The funding was significant too, with the impact of the endowment for the Center. I probably heard more about the endowment than the land. I was aware then too that the UMCA director position was funded by an endowment from Doug Allen that was established before the Land of the Osages endowment.
>
> I never met Doug, but I was encouraged to add a day to my interview [in 2018] so I could travel to the site with Dusty. I spent a good part of that day with Dusty, and of course, he knew Doug so well that he shared a lot of what he perceived as Doug's vision for the site. I certainly felt like that vision and everything it encompassed very much aligned with my own thinking. If anything, it really solidified my feeling about the Center for Agroforestry in general. Doug was interested in the Osage connection and native medicinal products, but also the local community and local agroforestry opportunities. I thought it was inspiring and exciting to see those pieces come together. I saw it as a huge opportunity.

Until the naming of the farm, Osage Nation was not involved with the site or connected to Doug Allen directly. But the transfer of Doug Allen's estate was a much more involved process, legally and logistically. Barry Eschenbrenner was the farm manager at HARF at the time and became involved in supporting that effort in a very practical way. Barry had previously helped at Doug Allen's farm preparing fields for prescribed burns (2017), and

later helped clean up and prepare for the Grand Opening. Barry is now also serving as part-time farm manager at LORF given his proximity to both farms (LORF and HARF).

Barry: After Doug Allen died, I got sent to Kansas City to clean out his house, and that's where we went for all of the historical stuff, the bow and arrow collection. We have a basement full of stuff at HARF, and then we have what they used to build the bows. Some of that is in a display in the natural resources building on campus. But we were really there looking for the paperwork, the patents I guess, for the cams on the bow. Dusty brought a small U-Haul that we loaded with tools and anything else we could use. Everything else was going to be auctioned. It couldn't have been long after he died because when we were there, those chairs that are in the house at LORF now, they were getting delivered the day we were there cleaning up his house. He had bought them from a furniture store, and they were just making the delivery for Doug. We just put them right in the U-Haul.

Sarah: There was the piece where Doug had promised the land, but then there was a whole negotiation process where MU had to get him to also commit enough money to cover expenses related to it, because the University didn't need the land. The thinking was, if you're going to give us land, you have to give us money to have an endowment that helps support the maintenance of that land. That additional commitment would have taken some time to work out.

Dusty: There was also survey work that needed to be done there, and other things by our real estate department. I was fairly involved with that and with our

> advancement group, communicating with Doug's lawyer about his wishes postmortem. I'd known Doug for many years, but I had never actually been in his house [in Kansas City]. So I worked with advancement and with folks here in the school and the college, and our system, real estate office, through the whole transfer process. Part of that involved working with the legal team that was administering Doug's will and Doug's desires for what his service might look like.
>
> It was before Doug's passing that he shared his interest in naming it after an Osage Chief. By his definition, that Osage chief's name meant "arrow going home". I think that was Doug's way of recognizing their history with the Missouri land as home, but I don't know that 100%. He did also want the legacy entwined with that property and that the Osage were also a part of Missouri's history. Between MU Legal, his legal team, and the communication through Advancement, Osage Nation was able to express their desire that it not be named just after one Osage chief, but to be named for all the Osage people.

Without Doug Allen's living voice to confirm his intentions, the memories of those who spent time with him and heard his vision are a singular source of insight into his wishes. As benefactors of his gift, it is also our responsibility to interpret a reasonable path forward.

> **Hannah**: What's interesting to me is that the pulley on the compound bow is the mechanism that's copyrighted, but of course it wouldn't be anything without the bow itself, which is a technology of Indigenous peoples. The legacy of Doug

Allen's wealth and the way our legal system operates in terms of valuing and not valuing these things, and the fact that that narrative is so connected to something rooted in Native ancestry and then coming together to make something from these parts; it all seems strangely metaphorical for what's happening here.

Gene: I know exactly what you're saying. I think Doug envisioned his estate going to feed the concept of management and appreciation for nature, and he wanted to tie all of this back to the Native Americans who had lived on his land. He didn't want anything himself.

Hannah: Do you know where his appreciation for Native plants and peoples came from?

Gene: I only know after he bought that land, I went down there and walked most of it, and I found a site on a hilltop overlooking the lake, and I thought, this is really unique, I have to bring Doug to see this. I brought him up on that hill as far as we could go and he said, Gene, do you think this is a burial site? I had no idea, but I remember Doug saying, I'm going to learn all about the Osage Indians, and I think that's where a lot of that interest came from. Doug was well read and very bright. I know he really studied the Osage culture.

Doug had become a very close friend. Joyce [Gene's late wife] and I took him out to dinner every Christmas and every Thanksgiving. Servers all loved him; he wanted to hear jokes. He just became a really really good friend. The things he felt so strongly about came out, even the Osage thing. I had found a book about Native American sites and had shown it to Doug. It wasn't a month or two until I

received a call from Doug. He did his research; he wanted to name the farm for an Osage Chief. He and I were planning on going to Oklahoma to meet with the Osage Nation. This was just before he passed away. And then of course all of that went out the window. Well I brought it up with Darcy Wells and David Clifton [MU Advancement], and I said, you know, this is something that Doug wants and I'm going to push for it. They did their research and consulted with the Osage Nation, and the decision was made by the Osage that it should be named for the Osage Nation rather than the Chief. Doug would've loved that.

SJ: We called it the Allen Project Site or something like that at the time, and Doug did not like that at all. He did not want his name on that piece of property. I learned that at the very first meeting. Doug wanted to name the farm after one Osage Chief. Of course we had to look into that. The first process was to get the farm transferred to the University, and Doug's lawyer was involved, and the University lawyers were involved. It wasn't just the farm. We also got his house and everything he owned; everything in his estate came to the University.

With the land, once it was transferred, the next question was how do we honor his wish. He didn't want his name associated with it. I tried to convince him that our goal was to name the farm after him because he was the donor. I don't know if he ever mentioned to me about working with the Osage Nation, but he wanted to honor them through the name of the Osage Chief. That's what I recall. We didn't even know the correct name of the Chief, so we needed to run it by the Osage Nation and figure out what is the best way to honor and the appropriate Chief for

> that area, confirm all the details from the Osage Nation. They would be the best people to get that information from.
>
> We didn't know how to connect with the Osage Nation. In one of my meetings with some of the University folks, someone mentioned that there was a professor in Arts and Science who studied Osage Nation. So we invited him to join us, and he mentioned Andrea Hunter's name. That's how we got connected to Andrea.

Dr. Andrea Hunter is an enrolled member of Osage Nation and the director of the Osage Nation Historic Preservation Office. She is also an alumna of the University of Missouri, having completed her Masters and Doctorate in anthropology from MU in 1991.

> **Andrea**: I first learned about it through the naming. Someone contacted me about the name. That's the first I'd ever heard about it, and then I took it to the TCA [Traditional Cultural Advisors] where we talked about the name, came up with the name. They had sent me an email; 'We want to name it this. Are you okay with that? Is the Osage Nation okay with that?' I don't remember what the name was now.
>
> **SJ**: In conversations with Andrea, we learned that she would discuss it with the Osage Nation. And subsequently we learned that, no, they didn't want to name the farm after that one Chief. If I remember correctly, they said they had multiple chiefs who would deserve such a recognition and so it wouldn't make sense to honor just the one chief. So we asked, what's your recommendation? They came up with two or three alternatives; we liked Land of the Osages and the rest is history.

> **Sarah**: It did feel a little like the naming and that connection [with Osage Nation] inevitably changed the way things moved forward. You know, to be granted a naming opportunity from the Osage that they agreed to, they probably would have wanted some sort of commitment or feeling of realness in the connection to the site. I don't imagine they would just want to apply their name to something and then get no value from it; that wouldn't be fair. So in a way, it made sense the way the process went.

The process of transferring and naming the farm was the beginning of an institutional connection between representatives of Osage Nation and MU CAFNR. In October 2019, delegates including Osage Nation Chief Geoffrey Standing Bear, the Osage Nation Congress, Traditional Cultural Advisors, and Osage Nation Historic Preservation Office joined us (the Center for Agroforestry) with other MU students, faculty, and administrators to share the table over hearty meals and conversation during the public inauguration of the research center farm. The Grand Opening took place to publicly signify the farm's addition to MU AES as Land of the Osages Research Center. The event included Osage drumming and song, presentations, walks around the land, and casual discussion about what research center activities might be of interest to Osage and MU community members.

> **Dusty**: We didn't host the Grand Opening right away after Doug Allen's passing, but it was fortunate that we got that in before COVID hit, otherwise we would've been delayed for several years. The legal things were happening, including the naming, and our institutions and the legal institutions around us don't move quickly. It is what it is, but that all gave us some time as well.

SJ: After the transfer and the naming, we had the Grand Opening and invited Osage Nation. I remember hosting 20 or 30 people from the Osage government, their Chief, the entire Congress and Speaker. We went out for dinner the night before the event, and you remember that cold day. University folks including our Chancellor back then, and the Dean were all there. And it was a wonderful event; that was the formal dedication. By the time I started working on the transfer of the farm to the University, I was the director of the School of Natural Resources, but I continued to lead the efforts since we were searching for the next director of the Center for Agroforestry. When I moved into this role [as AES director] it made even more sense for me to be connected because the farm was going to be part of the AES, so I still had that responsibility.

Dusty: The time we spent up on top of the knoll where you can see the lake, and hearing the Osage talk about land and air and water and their ancestors and the way they valued the place, I think Doug would have been pleased immensely. And my general impression was that it helped put us on a right path forward with our relationship with the Osage Nation.

Sarah: I thought the Grand Opening was extremely powerful: all of the planning that went into it, all of the effort the Osage community put into it, the number of people that were willing to come over. The words that were spoken by Osage members, I felt, were very powerful. We had a hayride around the property the night before. Stories and ideas were shared, and they were very influential. I felt like at least some people were definitely emotionally connecting with the site and envisioning opportunities there.

> I'll admit I was nervous as hell about every aspect. It was built up so much that it almost felt like it was inevitable to fail in some way. I had Dr. Hunter look at the message that I wrote out for the part I spoke; our [MU] president's office looked at it as well. I probably had you [Hannah] look at it first. And so the fact that we made it through without any big faux pas that I'm aware of was such a relief for me, to be honest. It happened so soon after I got there, within only a few months of my starting as director, and so I was really balancing the feeling of just trying to be present and appreciate what was going on with the kind of expectations on me to have my part go right.

Following the Grand Opening, emails were exchanged between MU leadership to identify individuals who would be relevant to invite onto the farm's Advisory Committee. Annual Advisory Committee meetings, virtually and then in-person, have yielded interesting impressions on process, relationships, and expectations.

Moving forward together

> **Sarah**: After the Grand Opening, we transitioned to a process of starting to plan out what would make sense in terms of land uses. I had my class, Ecological Principles of Agroforestry, working on that site remotely as their main project for complex design. And then COVID happened and messed up a lot of things. It certainly dampened the energy on getting activities going. It was a setback in so many ways, in terms of building momentum with the Osage community, but also the energy and momentum we had for getting research started out there, field days, etc. Everything got delayed and people's interests were distracted for a period. During that time, we still visited the site. Dusty and I would go down there

on occasion and talk about different research projects. We talked to a few MU researchers and had some visits with colleagues to think about what could be done.

Originally, we were working with the same advisory group we had for HARC [Horticulture & Agroforestry Research Center] though we were planning to have a separate one for LORC. I worked with Dusty on coming up with proposed names of advisory members. We were taking input from a lot of people, and we were the ones that made the communications with Chief Standing Bear regarding who he wanted to represent Osage Nation.

SJ: Overall, I think it was the right thing to do to connect with the Osage Nation and bring them on board, and I think we are doing it in a much better way than Doug ever envisioned. With your help, now we actually have a partnership with Osage Nation. Your NIFA grant was probably the first real concrete step to show them that we could actually work together.

The NIFA (USDA National Institute of Food and Agriculture) grant referenced was funded in 2021, two years after the LORC Grand Opening, through the New Beginning for Tribal Students program. It supports an area expressed as a priority by Osage Congress members during that initial site visit the day before the Grand Opening, for Osage youth engagement and education. It is also an effort for partnership between Osage Nation and UMCA reflected by our regular exchange with co-PIs including Dr. Jann Hayman, Osage Nation Secretary of Natural Resources, who has also been active on the LORC Advisory Committee alongside Dr. Andrea Hunter, both appointed by Osage

Nation's Principal Chief Geoffrey Standing Bear. Jann and her colleague at the time, Harley Moore, also participated in the Agroforestry Training Academy in Missouri, and Jann has since become involved in another research grant at MU with Dr. Kiruba Krishnaswamy and undergraduate Osage student, Shaley Boyd.

> **Jann**: I think I heard about the Land of the Osages Research Center after that first big event there. I had heard that Chief and Congress and maybe some cultural folks were all there. It was after that, Chief had asked me and Dr. Hunter to be on the Advisory Committee. So that's really how I first got engaged. I hated to have missed that first event because I heard it was really fantastic.
>
> In my capacity with the Osage Nation, on the environmental and natural resources side, we have always been pretty limited jurisdictionally to the Osage reservation in Osage County [Oklahoma]. We had talked over the years, since my time with the tribe, what can we do outside of that? How can we expand out past our boundaries here, but an opportunity just hadn't presented itself. So when myself and my team on the back end first started thinking about the Land of the Osages Research Center, it really kind of opened a door for us, to do what we had hoped to do for years, you know, just to extend out. We didn't know where we wanted to go, but we do a lot here, and we always felt like we could do more if we had an avenue to be able to take some programs or expertise and to make that connection. We are, as a tribe, trying to get back into our homeland in Missouri. So this gives us an opportunity to make that connection.

In 2021, Sarah and I [Hannah] visited Osage Nation's Harvest Land farm in their capitol city, Pawhuska, Oklahoma, to learn more about their activities, goals, and opportunities for meaningful collaboration. Federal funding available in response to hardships from the COVID-19 pandemic supported major infrastructure development there, including meat processing facilities for cattle and bison raised on the Osage Nation Ranch, aquaponics production, greenhouses, and a food forest planting, all of which contributes to the Nation's food sovereignty goals. We worked together with Jann Hayman to design the food forest and to identify sources for the plant materials order during a time when plant nurseries were extended due to a spike in demand during the pandemic. Ultimately, elderberries, pawpaws, and persimmons were among the perennial crops planted there beginning that fall.

> **Jann**: Here at Harvest Land, we have pawpaw trees now that we didn't know before the relationship with Land of the Osages in Missouri. Now we know them and we can start thinking about ways to really incorporate our truly traditional foods back into our diets and how we look at that here on the Osage reservation. Almost more importantly is the educational piece to that and the connection back to the land. For me, I feel like it's on some very deep level healing to go back to that land that we know we came from. Our generation, my generation, we know we came from Missouri, but I don't have a memory of that; my parents and grandparents don't either. So to be able to go back, you can almost just sit and look out and imagine what it looked like when the Osages were there centuries ago. So that educational piece for Osage Nation employees, for students, for elders, across the board, I think that brings an opportunity unlike any other.

> I've come [to Missouri] for the Advisory Committee meetings, and I was also involved with the Agroforestry Training Academy [in 2022]. When we were at the University getting ready to get into a vehicle and go on a tour with the Academy, I'm walking down the sidewalk on campus and I hear "Jann!" I was confused because I don't know anybody there. I turned around and another Osage tribal member, Ed Smith, was right across the sidewalk, and it was so funny that we're both Osage, both there. You know, the connections are there. That was just so exciting and made an impression on me, that we're not alone, you know, that there are Osages around.

Ed Smith, an Osage alumnus of MU whose three children have also attended MU, lives in Missouri and serves as an additional connection. Ed's daughter, Nya, joined Osage MU student Shaley Boyd as co-mentors of the 2023 MU-Osage Summer Experience Week, a program supported by the 2021-2026 NIFA grant that also funds the four-year degree scholarship that Shaley was awarded when she began her studies in nutrition and exercise physiology at MU in fall 2021. Since then, she has attended and mentored her peers each year during the summer program in Missouri and Oklahoma.

> **Shaley**: I first became connected with LORF in 2022 after being selected for a scholarship through the MU-Osage Food Sovereignty Project. LORF was one of the primary sites featured during the summer experience week for Osage students. During that week, we were introduced to the history and cultural significance of the land on which LORF stands. The experience allowed me to gain a deeper appreciation for the farm's mission and its connection to the Osage people.

> The significance of the farm for me and my community lies in its deep cultural and historical roots. Long before the region was settled, the Osage people thrived by living harmoniously with the land. Today, the farm serves as both a reminder of that heritage and a platform for revitalizing traditional ecological knowledge. Its ongoing efforts in stewardship, conservation, and sustainable land management reflect the values of the Osage Nation and serve as a model for others seeking to improve land health through culturally grounded and environmentally conscious practices.

Students at the MU-Osage Summer Experience Week have a chance to reconnect directly to their ancestral lands at LORF alongside Osage Nation Historic Preservation Office staff and other Osage peers and mentors. Local (non-Osage) Advisory Committee members have expressed interest in growing their own understanding of this cultural connection, particularly after an initial presentation on Osage history in Missouri from Dr. Andrea Hunter in 2023. She had also presented about Osage cultural history in the Missouri Ozarks during the May, 2021 LORC virtual field day.

> **Andrea**: At the previous one [Advisory Committee meeting] I went to, I think it was good for them to hear about our history and the association, which a lot of people don't know, and so to at least give the board members that exposure. I appreciated the gesture to be asked to do that. And I could do it again, you know, if new people come on board, or talk about something different.

> **Joann**: Dr. Hunter gave such a concise history in that presentation. She's someone that I wish we could hear from again. That's been two or three years ago now, but

her conversation with us still sticks with me; she made an impression. It's probably the first time I thought to myself, woah, we're missing the boat here if we're not sharing that history with the community. She had a way of sharing that made you stop and reflect rather than just get angry about it.

Hannah: Yeah, I tend to feel a deep grief about the tragedy of what happened, the removals and the severing of people and culture from the land. We can't change the past, but we can change how we approach things in the future, and that's how Dr. Hunter's presentation came across to me, very matter of fact.

Joni: I have local connections there [in Gravois Mills and Laurie, Missouri, near LORF] through the lady whose grandfather had the land that's now LORF before the Bagnell dam went in. I find that string very interesting because essentially that land was taken from them too when the lake came in. They basically got pennies and got moved out, but her family is buried there too. I was very interested when Dr. Hunter came and talked about their perspective on why doing site assessments is important, that their relatives might be buried there. I don't think we have as strong a connection to that, but she really drove home the point that we are still connected and very much care. When she was talking about why we want to know and not disturb them, it was very powerful; it helped me have more understanding. She did an excellent job putting it in their perspective, but not in an accusatory way. I do remember her saying, we'd like for you to give it back.

Sarah: We were strongly encouraged by Dr. Hunter to delay doing much of anything on the land until at least that initial [cultural] survey was done, which

did hold things up for some time. When things felt like they were moving slowly, there were valuable reasons for that, like we didn't want to start plowing into something that might have been part of the archaeological heritage of the site.

Hannah: Yeah, and that, in a way, was also affected by COVID because of travel restrictions to come do the work, and then also the priority surveys that I believe the Osage Nation Historic Preservation Office needed to do related to infrastructure from the Inflation Reduction Act.

Dusty: From my perspective there've been hiccups working with the Osage Nation. We need cultural survey work done if we're going to honor their expectations. And I think that's the right thing to do, but we're wholly tied to them to have that done, and they're busy on things of different importance. So it's not wrong or anything except to say that I think it hinders our progress forward in some ways, that we need to have them be a part of that.

Protection of cultural resources is a priority for the site, but even in the time it will take to complete that surveying for the entire farm, important cultural exchange has taken place during our intermittent interactions, exemplified by the responsiveness to Dr. Hunter's presentation.

Sarah: I think there's so much value even just having that advisory group meeting together. That in itself is a cross cultural thing that shouldn't be undervalued. Even without actual activities happening on site, the interaction alone is a kind of doorway into something greater that could happen over time with the ripples out from those connections. But it takes time. Everything takes time. We learned that

too. It takes time to build that trust; you can't just hope that all of the sudden we have an idea and they're just ready to jump on board.

Hannah: In that way, the duration of our limited connection, in light of things moving more slowly, I hope is a kind of testament to our commitment.

Jann: I feel like the Advisory Committee has been effective. At least for me, when the Osage are represented, I feel like we're accepted and respected; we're appreciated and our presence is welcomed. I like the diversity of the Advisory Committee. I've worked with some boards that are not diverse, and I feel like they're missing out on a lot of opportunities, so personally I like that me and Dr. Hunter are part of a larger group that brings different perspectives and different backgrounds. Through that collaboration, that's where you're going to be successful because we have our own perspectives, but we're not going to think about some of the other perspectives, and it takes all of them to make the right decision. I think we need that diversity. And everybody I've worked with at the University of Missouri has been fantastic. I always feel welcome, and I feel like our experiences and our knowledge and my position with the Nation is honored. Especially with Dr. Hunter's background in academia too, I feel like we're all kind of on the same page. We all have our specific expertise, but it's all working together. Everyone has to be willing to learn from each other. I try to go into it open minded and I feel like everybody else on it is the same way, and I think that's really important. I'm thankful to be part of this whole process and I hope I contribute to something meaningful there that benefits everybody.

Shaley: Since its opening, I've had the opportunity to visit the farm twice – once in 2022 and again 2023. Both visits were meaningful experiences that included sharing meals, engaging in cultural discussions, exploring the farm, and connecting with the dedicated individuals involved in its operations. Each visit provided valuable insight into the ongoing projects and the collective commitment to preserving the land's ecological and cultural integrity.

My impressions of the activities I participated in have been overwhelmingly positive. It was inspiring to witness the collaboration among the University of Missouri, the Osage Nation, and the local community – all working together toward a shared vision of preservation and learning. Walking on the same ground once inhabited by my ancestors is both humbling and empowering. The environment at LORF has always been welcoming, inclusive, and open to the exchange of ideas, blending academic knowledge with cultural wisdom in a way that strengthens community relationships.

Joann: When I first started going out there, the farm just seemed like a neat piece of property. I grew up in farm country, so that's always kind of been a love. But then when it was named Land of the Osages, I thought more about the history of the place. That's not been something that I've necessarily paid attention to or studied, but since then, it's become more of a connection for me.

Kids growing up today need to know the history. We're missing an opportunity to teach kids in the community; they need to understand where it came from. I would like to see us take a direction where we involve the community in learning

> the history and learning about the Osage. We need to get back to the history of this country, and this is just one part of it, but it's where we live.
>
> **Tricia**: I came out one day when you had the students from Osage Nation here and Kilan Jacobs [Osage Nation Historic Preservation Office] talked about the history of the Osage tribe here, and it was mind boggling and awakening for me. I had no idea. We just don't all know what the experiences of different folks were in this area, so I was impressed by that. And I'm very happy that the Osage tribe is part of this.
>
> I realize it's a long way from MU and even longer of course for Osages, but things like that would help us honor Doug's vision, and also honor the Osage tribe and the Center for Agroforestry's work. I'd like to have more interactions with the Osage and do more together. I think there's a lot that would benefit this entire community, that could invigorate this area and bring new value to it.

While a greater understanding of Osage connection to this land has fostered an interest in further engagement and learning, research with and for Osages requires navigating not only geographic distance, but also attending to responsible and ethical partnership.

> **Andrea**: You know, other researchers have been a real issue for us in terms of using our art history, our sites, Cahokia being of course a gigantic one, where over the years they've done what they wanted to. It's only been in the last couple of years that we've finally been able to get through to some of them, that they need to ask us first and work with us through the development of their proposals instead of bringing us in at the 11th hour. In the discipline itself, Cahokia is a

> huge location and a lot of people from all over the world want to go and do all different kinds of studies. They're destructive studies and they've been able to do it for a long time without ever bringing the tribes in to ask if we wanted it done. So highlighting something like that for other areas and other sites is difficult because they don't know us, and we don't know who's proposing to NSF or wherever for their research projects. So trying to highlight that as a new avenue to include the people who you're actually working on is important.
>
> We need to get the [cultural] survey completed first. That will tell us what's out there or what's not out there. So that's the first thing is to really get the whole area in terms of cultural resources and past resources, to get those identified. And then we can look more towards the plant aspect.
>
> We're really focused right now on trying to get all of the known plants, to get their Osage names attached to them and get that information onto our website so it's usable to Osages and anybody else. It sounds simple but lordy it's a lot of time to do that.

Complicating the call for cultural survey work is the need for better understanding of what the survey will accomplish and how it could affect future activities at the farm. Where archaeological research could be a potential opportunity from significant findings, protection of cultural resources is also seen as a possible barrier to research activities involving the agroforestry practices Doug sought to highlight.

> **SJ**: The cultural survey is a reality for us even on other farms. When federal funding is used, we have to do a survey, and there have been delays with those

too. It took 4 or 5 months to get it done at one of the farms, and then everything was delayed. But I recognize the importance of it and the need to do it, especially on construction that would disturb the ground. I don't know if I fully understand the need for it if we're not disturbing the landscape. Plants, trees, these are part of the natural landscape there. If we don't manage it, nature will manage with wildfire, which we should avoid.

If we need to do it, let's do it and move on, because I don't want this to drag out. Doug passed away in 2017. I'm always thinking what would Doug say if he came back and looked at it today. Here we are eight years later and we are still talking about doing the survey. Let's get it done within a reasonable timeframe. We've started something that I believe is unique with this partnership, that we need to cultivate further. Doug left us some money, and we need to be wise stewards of that funding.

Dusty: The idea of being respectful is not new to me. But what others expect respect should look like, it's hard for me to necessarily grasp as well. I don't know what I don't know, which is a funny thing to say, right? I'm not somebody who's had my rights and privileges abused in the past. Now maybe I have if I were able to look back 5000 years, but I don't have a cultural heritage that goes back, nor do I have modern day treaties that have not been honored. So it's tough for me to understand what their expectations are of me respecting their involvement unless it's verbally stated to me. So that's why I say I don't know what I don't know, and communication is critical.

So where am I now on this? I'm waiting for the next project. We're getting ready to put out a call for proposals and make money available to support research proposals. If a proposal comes in and if it involves an area of the farm that has not had a cultural site survey done, I am going to respectfully ask them to come up and do the survey on certain parcels of land because we have research proposed on them. We need to get some driver behind it, just beyond saying we'd like to do another section. The goal is to get all 550 acres done.

Jann: As long as there's an early conversation on how we get there, Dr. Hunter is really good about navigating that, maybe in a staged approach for surveying.

Dusty: I don't know what has to be discovered to stop use of a property, but certainly it can redirect what opportunities we have on a piece of ground, and I think we have to look at it also as creating other opportunities. My first thought is for it to be an opportunity to educate the public, but other people come in and steal or desecrate, so we're more limited with what we can do. But we will have strengthened the tie here, and now let's talk about what that means and how it looks. Can't we communicate what respect for history looks like, respect for the land, and perspective about respect for the land?

I've learned a lot from that property and even matured a little bit I think in my respect for honoring others wishes, whether that's Doug Allen, my friend who passed away, or whether that's respect to new friends in the Osage Nation and the things that I don't understand. And so it's incumbent upon me to try to learn a little bit more what it looks like in our relationship, to honor that.

Reflections on our identities and connections

"We do not see the world as it is. We see the world as we are." (Nin, 1961)

The accuracy and interpretations of our memories of the circumstances shared in this narrative are reflective in many ways of our positionalities. In some cases, these are moments five or 10 years in the past that have been filtered through reflection and dialog. Recognizing the limitations of our own subjective perspectives points to the importance of adequately representing viewpoints of people from multiple backgrounds, and of being transparent about how our identities, exposures, and assumed narratives influence our understanding of our experiences.

When asked about insights that emerged from reviewing the reflexivity prompts, participants shared openly about their own stories and identities that affect how they relate to and understand what is happening at LORF.

> **Joann**: I grew up in a little community outside Kirksville, like 3,000 people. Keep in mind how old I am. I'm 77, so we're talking a long time ago, and I didn't even know there were black people until I went to college. And even then there were only a handful of other nationalities. I taught in Northeast Missouri, in Hallsville, in Unionville. Those were all small communities where you just didn't run across anyone but white people. Thirty or 35 years ago, we moved to San Antonio, and of course then I was thrown in with all kinds of cultures, and when we moved to Columbus, Ohio, another set of cultures, lots of Eastern Indian Asian people there as opposed to the Hispanic groups in San Antonio. It was all new to me. So what I'm trying to say is, I'm probably different than most people on the advisory

committee when it comes to understanding other cultures. I lived a very sheltered life for a long time, easily half my life.

When I read your reflexivity questions, I just thought, oh, I haven't thought about this for a long time. Look at how exposed I've become to everything else in the last half of my life. That made me reflect on how some of us begin not knowing there's another world out there. The kids in this area are the same. When I was teaching shorthand, I would reference something like a city in Michigan, and I would be flabbergasted that 90% of my students didn't know where Michigan was. You know, we need to take some steps to expose our kids to history and culture and other societies.

Barry: Where I came from, there was farm ground along the Big River, out of Lake Potosi, in that part of Missouri; it feeds into the Meramec. We would see so many arrowheads farming that river bottom. Especially if the ground was wet and it was darker in color, it literally looked like somebody just broadcasted thousands of arrowheads. House Springs was my hometown, named after a man named House who settled there. There were so many signs around there that there were Native Americans, just everywhere. It was just like, yeah, they were here before us. And I always thought to myself, why did they leave all their arrowheads? You'd stop the tractor five times a day; you'd be bored and go, oh, there's a good one, and you'd clutch and get off to look.

Hannah: It's interesting to me, because I think back to my education, I grew up in Columbia, and fourth grade was the year we had the Native American unit. We

even took a field trip to Cahokia. I was a little kid, but from what I remember, the message was that Native people were here and now they're gone, not even that they're still around somewhere, but just that that chapter is closed. And I remember at the Grand Opening there was an Osage speaker who recounted talking with someone at a gas station on the way up from Oklahoma and that person didn't know that Osage people were still around at all.

Barry: I'd say you're spot on. In my brain, finding the arrowheads felt like finding a dinosaur bone. With the arrowheads, I never collected them, I just thought they were cool, thinking about how probably no one has touched that for such a long time. But I never thought much about all the history. Had I seen human bones, that would have struck me or startled me. And true with any human being. My ancestors are from Germany, and my family has been here for 200 years, but they're still my kin, you know? So I get that.

Joann: One of the problems I see is not only that we've decided we don't want to talk about history, but also that we forget that each of us came from some culture that we may not totally recognize anymore. You know, we're a nation made up of all kinds of cultures, and I guess we need to promote that more, in my opinion.

Joni: My husband is from Oklahoma, a little town not far from Pawhuska. He's got Native family but he's not enrolled and he wasn't raised on the reservation or anything. On one of our anniversaries we did an Oklahoma trip, drove all around and learned a lot of history. We did Pawhuska, visited Osage Nation and all that. And the start of Land of the Osages Research Farm happened right around the

same time. It was really interesting. I always like to learn the history and try to walk in somebody else's shoes, see their perspective on it. My grandparents were immigrants from Austria and Hungary, coal miners and farmers from pre-American Revolution, so solidly white I guess. I think you have to know the history and the background to understand people and how they react. It's true in my Extension work too. I try not to rush to judgment.

I started as an agronomy specialist. It's what I knew: corn, beans, row crops, pasture. It gets to be a lot of big companies, not a lot of smaller guys. And so what I like about when I transitioned to natural resources is the smaller-scale people are coming in. I work with veterans, or they moved from the city, or they weren't really raised on the farm or in rural areas, but they're very passionate and they want more of a different lifestyle. Going from agronomy into natural resources, doing agroforestry, woodland management and forest farming, you meet more smaller landowners eager to learn and integrate it into their lifestyle. And I think they want to know about Indigenous land knowledge too.

I think you have to acknowledge the past. You have to know about it and even mourn or be upset, but you also have to figure out how do we move forward in a positive, constructive way without having resentment, hate, shame even.

Sarah: My mom lived on the Yakima reservation from age 3 to 13 while my grandparents were missionaries there. I have concerns with the mission work now, but my grandmother was my main babysitter growing up, and she would share beautiful stories of the Yakima children, just really fun things they did. It was all

very sweet and positive. And then I also heard the stories of the white community damming up Celilo Falls [The Dalles Dam on the Columbia River], where my mom went for summer camps, and where they would go for salmon fishing. That whole area was completely destroyed by development from white people, and the Yakima were very sad about that. My mom and her family saw the whole Yakima community suffer and lose a lot of their cultural heritage during that period. So that built a kind of foundation of appreciation and understanding for me. I recognize that it had multiple layers to it. Those intercultural connections, particularly with Native American communities have always been of interest to me.

From the beginning [of my work with the Center for Agroforestry], I think I probably felt some sense of that responsibility to cultural awareness, even from my past experiences. When I was at the University of Illinois, Chief Illiniwek was their mascot, and during the time I was there, there was a lot of awareness brought to those types of issues. It was intense. In Illinois, as in Missouri, the tribes that had been there had all been removed; there are no reservations, but obviously the heritage of the land is still there. There were tensions between the people who wanted to keep this iconic Chief mascot including a couple people who were Native American connected with our department who thought the mascot should remain, and other people who were very much pushing to get rid of it. Ultimately, it was decided that they would remove the Chief as the mascot and change all of the branding of the University away from that. But there are still relics of that imagery up in old bars and restaurants. Later, I learned a lot more about the land-

grant issues and other problematic topics. I honestly learned a lot from Andrea Hunter, just in the brief communications with her over the time I was at MU.

Tricia: I grew up in South Dakota, and I always say I was two generations from being in the wild west or a territory. The tribe there is the Lakota Sioux, and they had an Indian School, sadly. I look back on that and think, why did they do that? What were they thinking? I always felt like the Lakota Sioux got the worst end of South Dakota, and then people I knew would talk about how we're going to bring hog confinements onto the reservation to provide great jobs, and I just thought, do you have no conscience whatsoever? Do you know what it's like to work in a hog confinement? This is how you help people get out of poverty? It's just heartbreaking. So that's the background I'm coming into this with. We have to coexist, we have to adapt.

One reflexivity prompt specifically asked participants to reflect on experiences when intellectual pluralism, "a commitment to act ethically, to welcome difference, and to engage in open exchange about both ideas and decisions," (MU Office of Academic Integrity, n.d.) had been supported or challenged. What could be learned from those experiences about effective ways to enact this commitment that the University espouses?

Dusty: I sit here, I'm a white, European, male, Irish, German, English background, and sometimes I speak my mind, but most of the time I'm just kind of cautious because it's easy to say what's on you remind and hurt somebody's feelings without meaning to, but once it's out you can't take that rascal back. So yeah, I'd say intellectual pluralism is an excellent conceptual way that we should

be, but sometimes people get up in arms when you're open about things and it doesn't lead to discussion, it leads to fissure, a crack in the relationship. I don't like hurting people's feelings, nor do I like conflict much, so I'm committed to this openness with some reservations.

With defining culturally relevant research, I think the challenge before us is how to avoid becoming so unidirectional that we forget we all exist on one big globe here. I think it's a tough subject to dance around because again, Indigenous populations have had their knowledge used in ways they didn't get credit for or benefit from, and maybe they didn't even want it shared. So I can appreciate that, and I also want to make sure we integrate the Ozark knowledge alongside the Indigenous. Far be it for me to read into the motivations of an institution, but history has shown that the institutional good often outweighs or fails to respect the individual, so things can be taken advantage of. It's our responsibility to read through these [LORF research] proposals and make sure that protections are afforded to whatever might be developed from them, and help people see beyond the direction they have within their proposed research.

Meaning Making

What can we learn from our experiences related to LORF thus far?

The dialogical narrative collage presented above offers a picture of our connections to and experiences of the farm's beginnings, its transition to MU stewardship, and impressions of how we have proceeded since its opening as Land of the Osages Research Farm. What we can learn from our collective experiences is rooted in

reflections on how we have arrived at this point of land-based opportunity. Themes in these conversations reveal concepts around process, proximity, and pace that support an understanding of effective approaches to land-based partnership at LORF moving forward.

Process: An opportunistic and responsive capacity depends on the quality of our established relationships and reputations

Gene Garrett's narrative of the early years of the Center for Agroforestry's funding and land base is an important opening for understanding how the relationship he and Dusty and others at MU tended with Doug Allen would have been prioritized. The land-based partnership could expand agroforestry research at a time when momentum was growing for the field towards greater receptivity among farmers facing the need for climate and economic resilience amid disasters like the '93 flood. The site also presented a unique opportunity for this work to happen in the Ozarks, which was not otherwise represented among MU research farms with agroforestry at the time. Its location was a major factor in Gene's interest in the Center for Agroforestry's involvement at the farm. Gene's story also reveals the importance of his political and industry connections for leveraging federal funds and growing a base of support for his and the Center for Agroforestry's work. That opportunistic and strategic approach to securing resources is what sustains the UMCA staff and faculty who were and are engaged at LORF alongside support from the farm's endowment. Gene encouraged the Center for Agroforestry's leadership to take advantage of opportunities as they arise; not to wait for them to come to us, but to go looking for them. "One of the things that most people I don't think really knew about me is that I tried to take advantage of situations" (Gene Garrett, personal

communication, 2024). His capacity to be responsive to opportunities like this was enabled by the strength of his established relationships to professionals, practitioners, and politicians.

> **Gene**: Things just have a way of coming together, and right now, you and Ron [Revord, current UMCA director] are in the driver's seat, and you have to realize that, and you have to look for opportunities. When you see a good opportunity, political or otherwise, you have to take advantage of it. That's the only way that we've been able to get where we are today.

Before there was a recognition for the potential gift of land and the funds to support the land, Gene and Dusty had cultivated an authentic friendship with Doug Allen. In Doug's absence, it is difficult to know the impact that initial relationship, untethered by assumptions of wealth, might have had on Doug's trust that the Center for Agroforestry would be a worthy and responsible recipient of his land and estate. It was also suggested that Doug's intention to leave a legacy might have been influenced by his near death experience shortly before their initial connection on the land. Even if that weren't the case, those who knew Doug and that part of his story seem to recognize its impact on Doug's spiritual reverence for nature and community that extends beyond conventional research farm objectives.

As Dusty emphasized about their connection to Doug in those early years, "it was conversation" over multiple visits, with changing directions as Doug learned and shifted perspectives on some ideas like the presence of livestock within silvopastures. This approach to a paced exchange and openness to learning points to the nature of the authentic connection that preceded Doug's gift. Likewise, Gene's closeness to Doug,

eating together on holidays and sharing time outside of a professional context, and Dusty's late nights talking with Doug on their visits may have reinforced the relational grounds that led to more formal support. The ongoing expressed importance of adhering to Doug's wishes as outlined in his MOU with the University and in what was shared during their exchanges highlights the depth of commitment that grew both from the formal terms of his gift and also from their friendship.

> **Gene**: I know what Doug's priorities were. Anytime I speak of what we should be doing, what we should not be doing, I reference Doug. This is Doug's legacy, although he would not let me put his name on it, it just seems to me that one of the things we need to do is to take a hard look at this document [the MOU]. What can we do without great difficulty to put these things on the ground?
>
> **Hannah**: Folks who knew Doug understand this as a legacy of Doug Allen; the wealth that he brought in, the land, the legacy, there's so much tied to Doug's gift. At the same time, I think about the fact that long before the term agroforestry came about and all of your work and the growing recognition in this modern movement, agroforestry was practiced on this land and Osages were presumably part of that. And it sounds like Doug's interest was sparked by that, so what comes to mind for me is that of course we have a responsibility to Doug's wishes through the MOU, the legal part of this. The way I see it, we also have a responsibility to a historical and cultural awareness of the hundreds, maybe thousands of years that Osages stewarded that land. And MU really wouldn't be here without what is now understood as the theft of land through the Morrill Act. MU was able to gain the wealth it needed to survive as an institution because of

> lands coerced from Osage Nation through treaties. That responsibility we have to Osages here, it's not written out anywhere that we have to attend to it, but what is our ethical responsibility to the truth of how we all got to be where we are with this site? I guess it's coming back to the blending and thinking about all of this in terms of common ground. This is where we are now.

Unlike the relationship that developed between Doug, Gene, and Dusty over years of conversation and multiple visits prior to activity, Osage Nation was initially invited into this circumstance as a formality of naming. That MU administrators did not know even how to initiate contact with Osage Nation initially speaks not only to the geographic distance between Osage Nation and their ancestral lands and heritage in Missouri, but also to the social and cultural distance that separates many at MU from awareness of and connection to the Osage. Despite that MU exists on lands that were Osages' home for centuries prior to colonization, the absence of Osage faculty in our own College removes us from a biocultural understanding embedded in place and enabled by presence. The significance of Osage participation at the Grand Opening for the farm further confirms the importance of a real connection to these lands and waters. Osage and local presence at that event, in an advising capacity for the farm, and through collaborative projects like the Harvest Land food forest planting and NIFA grant for Osage youth engagement has created space for connection and a more incremental pace for growing relationships, even without full reconciliation or return of ancestral lands. Still, many involved in this narrative inquiry pointed to a desire to learn more about Osage history and culture, and to increase the frequency of advisory committee meetings in order to move forward together in an actionable and informed way.

> **Joann**: Having just one [Advisory Committee] meeting a year is something I've thought about too. We need to have more frequent meetings to be able to make forward progress. And we need the University to help us push forward in funding more research, getting it out there. Even if we don't have a structure to share with the community, we need to find a way to share what's happening there, because there are people in the community who would like to know. Having more seminars or day-long events to bring people out, to show them the land and any research and results. We need to do that more often and involve the Osage too.

Pace: Concerns around activity and productivity must be tempered with an attention to long-term vision for translational and relational engagement.

Each of the local and MU participants in this narrative described what they perceived as the slower movement of activities since Doug's passing, despite having the endowment and the land in our purview. The pace of cultural surveying is identified as one source of delay, as is the COVID pandemic and related limitations. Notably, however, even in the earlier years of Doug Allen's commitment for the land to be a site for agroforestry research and demonstration, things took time to become established. In the years from 2005, when the MOU was signed between Douglas T. Allen and the University of Missouri, until 2017, when Doug passed and the farm ownership transferred, twelve years passed during which time activities that took place were a small fraction of what had been outlined in the management plan presented by Dr. Dwyer's forest management class in 2007 (Blizzard et al., 2007) and the activities outlined in Doug's MOU with the University (Allen & MU, 2005). Those activities did include field days, limited research without substantial outputs, and demonstrations that were difficult

to manage for many of the same reasons that activity at the farm is still limited: it is the farthest from campus of the Central Missouri REEC farms, it has limited infrastructure for research activities, and no full-time staff to support operations. A full-time staff was in fact a recognized need for the projects outlined by Blizzard et al. (2007) that would fulfill Doug Allen's goals for the site. As Dusty Walter also pointed out, the University and legal systems can also be slow, as was his experience with the process of the farm's transition to MU on Doug's passing, and staff time has the potential to quickly exhaust the farm's endowment distribution.

> **Gene**: It seems to me that if Doug were to come back tomorrow, he would look at this and question the fact that his money has not yet been used to help students, or even for setting up research on the land. He died in 2017, so he's been gone seven or eight years. I trust it will happen, but Doug was impatient and liked to see things happen quickly.
>
> **Joann**: There are a couple people in the gardening group I'm in who've asked what's going on out there. They know I'm on the Advisory Committee and I kind of have to work around to the point that it's been kind of slow moving.
>
> **Dusty**: Some adjacent property owners have been pretty excited with what we're doing down there, just in terms of keeping the land from being sold to a developer, and at the same time, at least one of the guys who's been close thinks we move too slow. That's just the way of the University though.
>
> **SJ**: I know things are a bit slow, but we need to make things happen. We have opportunities on that farm. I see Doug's vision unfolding there in research,

demonstration, and outreach. We need to have something meaningful to demonstrate. Doug's vision was to show what we can do in terms of agroforestry, how people can make a living from the Ozark landscape so they can continue to live there. It's time that we accelerate our efforts.

Hannah: The advisory committee meets just once a year, you know, and I think the pace is a bit limited by that because we only have this one opportunity to check in about where we're going, what we're prioritizing, and what's the incentive for researchers to do their work on a farm that's farther away. I do think the RFP for research proposals that just went out is going to be transformative for that to promote new and returning activity there.

What is also clear from the consistent observations about limited activity at the farm in recent years is that those who saw no activity whatsoever may have simply been unaware of what had in fact been happening, pointing to the need for more regular communication, with Advisory Committee members and also with the local community and others who could benefit from intermittent updates. COVID affected what could be done in the years immediately following the Grand Opening of the farm, but not long after, an Advisory Committee was established and a day of virtual seminars related to the site was presented. A Floristic Quality Assessment (FQA) (Thomas et al., 2025) met a need for biological surveying, and some cultural surveying has been completed. From the FQA conducted by the Institute of Botanical Training in 2024, a complete list of plant species present on the farm is available. Under the direction of Dusty Walter and Andrea Hunter respectively, the University contracted with Osage Nation Historic Preservation Office to initiate cultural surveying for an area that was used in a single-year goat grazing

study for impacts on the control of *Serecia lespedeza*, a noxious weed in pastures and grasslands (Esparza-Harris et al., 2024).

Since 2005, there are a few people like Dusty Walter and Gene Garrett who have been involved continuously, though their roles have changed over time. However, inevitably, the composition of who's involved and how will continue to change. As Dusty suggests, given the impermanence even of MU Centers like UMCA in the long view of this kind of institution, relationships and structures that can stand the test of time are what will see this farm through to its full potential. Concerns around the pace of activities also must be tempered with an attention to long-term vision. Our financial resources, our time availability, and the commitment to travel there for activities given the distance, all affect our capacities to fulfill goals for the site. We can, however, thoughtfully embrace relational and translational moves that can position LORF for enduring impact.

> **Dusty**: Long term, it's hard for me to see too far out because things are pretty dynamic, but I think taking care of day-to-day management, supporting research, and figuring out ways to tie into relationship are all critical to the success of that property, which goes beyond me and goes beyond thee. The MOU is written with an emphasis on the Center for Agroforestry, but even Centers come and go around institutions that last hundreds of years, right? So I think it's incumbent upon us to set this up in a way that the relationships span the test of time; it's a process that occurs over a long time and through many different people.

Proximity: Those who are able to be present and to participate can inform how the farm might serve relevant communities

The engagement and interest in the site that emerged from local participation in field days is a testament to the effectiveness of a translational approach to community involvement. Despite that limited research has taken place on the farm, what has been established was also designed to demonstrate agroforestry activities for the purpose of translating institutional knowledge to local land stewards. All three of the people who have served as Advisory Committee chairs are located nearby and first connected with the farm during hands-on field events there.

> **Joann**: After volunteering there, the farm just became enticing to me. Whenever there were events, I would go. As time has gone by, I feel like there are lots more things that could happen there. It's a neat area. It would be good to bring the community in to learn more about it.
>
> **Tricia**: Through Master Naturalists, I've been able to engage with local folks who care about preserving and protecting the environment, and I've also been able to engage with the Center for Agroforestry and the good people at the University of Missouri who share these values. When I went to work for MU Extension, every single person who walked in wanted to know how to make a living on 20 acres in this area. They all have that dream. It's not always practical, and there's some harsh realities, but the way I look at it, we're all at different places on the same path, and there's ways to share something that's meaningful for them and for me.
>
> I've enjoyed getting to know some of the research that had been done there too. I have an appreciation for the site, and I would like to see more. You know, the field

days were great, and I know people would benefit from them; everybody learned something and everybody enjoyed something.

SJ: Doug valued connecting with the community. Now we have extended that even beyond the local groups to Osage Nation in a very meaningful way, and I think we should cultivate that part even further.

Joni: I've helped with some of the workshops since the farm opened, and as recently as this last year [2024] doing the forest farming workshop with you [Hannah]. And sometimes Barry [the farm manager] and I will go down and talk about what can be done here. We helped Sarah Havens [another Extension partner] do the walnut tapping for syrup, and I try to tell people about it. I try to make people more aware of the area and the background with Doug Allen and Osage Nation to thread that needle and make that connection.

Dusty: Carrying forward with the kind of recognition of Missouri heritage and the work that you're doing with some of the Osage youth over the summer programs; these are things that would have been highly supported by Doug. That and the field days reaching local people, I think that's exactly what Doug would have wished.

Aside from the Grand Opening and NIFA-supported summer programs with Osage students, Osage presence at LORF has been limited to annual Advisory Committee meetings (when they don't conflict with Osage Congress' extended sessions). The distance between the Osage reservation in Northeast Oklahoma and LORF is a reality that will limit Osage participation unless efforts are made to bring us together. As a way

to show this commitment, in 2025, the Advisory Committee met at Harvest Land in Pawhuska, Oklahoma, and was graciously hosted by Osage Nation with a traditional foods lunch and tour of the farm. More efforts like this and other creative approaches will be needed to increase opportunities for Osage presence and engagement.

> **Joni**: I think we're doing a fine job, but it would be nice to do more activities and at least when the Osage youth come to have an Advisory Committee member also participate with them, or have a gathering to help us get to know each other more.
>
> **Jann**: I think there's a lot of opportunities, and sometimes we're limited with what we can do with funding and people, but even still, there's a lot we can do here. We can help develop processes or programs or provide input. I hope there's a lot that we can still contribute, even if we're not there all the time; we still want to be not just included but to have a meaningful relationship.
>
> I know it's hard to coordinate, but it would be nice to maybe have one or two additional meetings each year maybe on Zoom, beyond just the one in person meeting, just as a chance to connect.
>
> **Sarah**: The original me would have probably been pushing for the Osage to have a dominant role there. But after reflecting on what they have going on in their own community and recognizing that it's a 5 hour drive, I can really appreciate the challenge. If I were them and had a choice of spending time on projects on my own land versus making this connection to a historical site, it'd be hard to justify a ton of your own community's effort going over there. I would see it now more

as an opportunity to educate, to make a connection with the rural community about that cultural heritage, serving them too.

Even though LORF is in a high tourism area, there are some areas of rural poverty. If you can make a little step toward coming together between cultures, I think that's a unique opportunity that the site could provide and that other research farms don't provide. And if you have enough engagement with the Osage for that cultural aspect to be legitimate, accurate, and open to specific interconnections as much as they have time for (like the concept of a cultural exchange); that would be, in my mind, a most beautiful thing. And what if you could identify some high school or college kids from the local community who were mature and empathetic enough to sign themselves up for a week spending time in Pawhuska? Can you imagine that? …for some students who were thoughtful and engaged, imagine what they would learn and then take back to their friends? It could change the way they perceive everything.

Hannah: Even some of the farmers in the area who might be younger or open to new ideas. There's been a renewed interest in homesteading and growing food with native plants, and I think some of the people doing that would be receptive to learning more about the history and heritage on the land. Making those connections would probably depend a lot on our local contacts through Extension and the nearby residents involved on the Advisory Committee.

Sarah: Yeah, and also not neglecting the economic vitality aspect. We have something to learn from the Osage community about how they are doing local

> food types of things…their meat processing facility, for example. They're figuring out a way to make it make sense economically and based on community health and food security to invest in these types of things. What can we learn from them that could apply to a rural Midwest farm community, for people trying to make a real living off of agricultural enterprises there? And then what can be tested on that site to help guide that or provide insight into the economics or the food security?
>
> **Hannah**: That concept of rural sovereignty really seems to align with Doug's vision.

What values and priorities are central to our vision for the farm moving forward?

The people involved at LORF now, having largely been involved since its inception and transfer to the University, have a sense of the history of how the site became available to us. If Land of the Osages Research Farm is to be a place for research, outreach, and education activities within this land-grant institution over many generations to come, and if we intend for the values we share as a community of founders to be recognized by those who are connected to the farm over these generations, it is our responsibility to make these values clear. Concepts central to our collective current vision for the farm emerged within shared experiences and from imagining its potential. Further development of a set of shared priorities to guide our direction based on these emergent themes can continue through ongoing feedback and reflection.

Honoring the legacies of Doug's gift and Osage ancestry on the land

For those who knew Doug well and understood his vision within and beyond what is outlined in the MOU, emphasis on the ethos he embodied was an underlying current in any activity envisioned for the farm. Doug's humility and openness to changing ideas, his reverence for nature, and his thoughtfulness about local community engagement all stand out as values that can be complementary to more recent attention to Osage connections on the land.

> **Dusty**: I would always like us to remember and honor the gift Doug gave us, the opportunities to do research and cultivate relationships that he has created for us. Always in the background of my mind is respecting what he wanted when he left the property and acknowledging too that even his perspective on that land and the relationships and the research were somewhat evolving and dynamic over the length of time I knew Doug. I saw him change with what he'd like to see out there; his perspectives shifted over time, and it's also interesting because that property is so strongly tied to the Center for Agroforestry, and subtly, the Center for Agroforestry has adjusted over time too. They're a reflection of the world around us and so I think Doug would appreciate too that that's going to mean the property adapts a little bit moving forward. He enabled that.
>
> He didn't say it to me as much, but I know Doug's goal to leave a legacy developed after he was in a car accident and woke up with a sheet over his head. That doesn't have to be the driver behind how somebody structures their goals, but you ever just stick your hand in the soil and feel and think inwardly about life, or sit out in the woods and listen to the wind blow through leaves of trees. I don't think everybody necessarily has to do that, but that's how I see the value of the

history of the land and what it is. I think it's important to document and keep, and I hope that people will value how a gift like this came about. And I hope they'll look back on it as the property moves forward and different partners are part of that path. I also don't know what tomorrow is going to look like and what emergencies will take shape that will reconstruct how all of us view the world around us.

Gene: One of the things I learned from Doug was that regardless of the individual, everybody has good ideas, it's just a matter of blending those ideas so you have something you can accomplish.

As Advisory Committee members came to better understand important Osage heritage and history in this part of Missouri through Dr. Hunter's presentation and their own inquiries, what started simply as Doug's desire for the naming of the farm has become a fully shared respect for honoring and engaging the Osage here as well, according to their own interests.

Dusty: As we look to where we're at with our relationship with the Osage, and I talk about respect, I can appreciate -from what I know and from what I've learned- the road they were forced to travel in life, and so I think some of that is why I also don't push super hard for decisions from them necessarily. I want that to be a buy-in part from them, because I think then what we have to look forward to is rich experience that will make both of us better in the long run. I think there's opportunities ahead of us, and those will lead to better things than we can imagine today.

Jann: At Osage Nation, we're doing some pretty substantial agricultural development, building infrastructure and taking a more active approach through food sovereignty, and utilizing the resources we have and managing those resources in a variety of ways. Seeing universities engage that tribal component, like University of Missouri honoring that the Osage were there is, at least from my perspective, a huge shift from where we were even 10 to 15 years ago. So it's really nice to see that, because we bring a lot to the table, and we have a lot to contribute. As more opportunities and curriculum and programs are developed, we can really help make it something that's important and significant to help everybody.

Shaley: For the future of LORF, I envision the continued development of research and demonstration projects that integrate traditional Osage values with modern sustainability practices. Specifically, I hope to see the farm expand its focus on agroforestry techniques that not only enhance environmental quality but also provide economically viable models for small-scale farmers. Beyond the research itself, I see LORF serving as a bridge that connects the Osage Nation, Ozark communities, and the University of Missouri – promoting shared stewardship, cultural understanding, and sustainable progress for generations to come.

Working together at a distance presents unique challenges. As ideas were shared in these conversations, one of the ways this was addressed was through recognizing demonstration and research opportunities for practices relevant both to Ozark and to Osage farmers and ranchers.

Joni: There's been a lot of interest in silvopasture here [in Morgan County]. For my work in Extension, I need to be able to show people that there's research to back it up, it's not just anecdotal.

Jann: Doing things like silvopasture is exactly the kind of thing I want to do here [at Osage Nation], especially in the bison preserve. Rather than annihilate all the trees, let's do some alternatives. But it is very complicated. One of the goals for the areas we oversee here is to have some demonstration areas for local people to come see what we're doing. As long as we're coordinating with you and sharing about what's working, we can learn from each other that way.

Gene: It would be so cool to have speakers from Oklahoma come over and provide the perspective their forefathers had in terms of land care, you know, the spiritual aspect of the site, which we as a culture have really lost. They had great respect for the land and that really needs to be part of what we incorporate into what we're trying to create and present to landowners.

Most MU AES research farms host public outreach events and field workshops to engage the local communities where they're placed, but Doug's expressed interest in community gathering including music, barn dances, and folk festivals goes beyond typical land-grant oriented research translation. His focus on these activities centers culture, specifically land-based culture that is resilient and thriving in what we might refer to as marginal or unproductive lands in impoverished Ozark communities. And while Osage Nation was not explicitly referenced in his MOU with the University, a land-based cultural focus for that area is a logical link to the ancestral stewards of these lands who would have been present just 200 years ago, and the tree and forest crops they were

known to tend, some of which are the same species of focus for the Center for Agroforestry today. Of course, Doug's interest in wildlife habitat and hunting also has logical ties to Osage culture, to the animals that would have supported their people on these lands.

Committing to ecologically and culturally responsive research and education

Honoring Osage place-based knowledge and ancestry also translates to cultural and ecological protection and restoration. A commitment to culturally responsive research and education starts with an understanding of what is currently there. A depth of knowledge about the site and the community around it can then support research and education that is responsive to ecological conditions, local and Osage community interests and capacities.

> **Andrea**: I think seeing the inventory of what's out there right now, and you know, sometime in the future, if we can sit down and look at the whole area in terms of what that landscape looks like in relation to the plants that are already out there and native plants that could be reintroduced, we could incorporate that into some kind of a program that gets the kids involved. I've got my hands full with what I'm doing, but certainly if there's interest in it and we figure out some mechanism, either working with the Language Department, working with education, working with our schools, and building some kind of program that could utilize that part of a curriculum of plant use, just the whole gamut from start to finish, how to find them, how to plant them, how to use them, harvest them.
>
> **Tricia**: A couple years ago I was at an event out west, and there was a gal who took us on a little tour and showed us the various plants that we would call weeds

growing, and she says, ‘this time of year, that particular plant will help you with this issue’, like plantain for bug bites. That kind of education is lost for most people, but it’s valuable. A lot of people still tend to fight even the native plants, and certainly the nuisance plants, but even those have some benefits. I think there’s certainly an opportunity for research into native plants here.

Jann: Even something like knowing what plant species are there at LORC would help us to develop our capacity to protect culturally significant species. I don’t know what that looks like in the future, if we would have authority over that kind of thing at LORC, but we could support identifying those culturally significant species and then protections to help manage those. And I don’t mean like we are going to tell LORC how to do everything, it would be more to assist with additional protections in certain areas or supporting those populations. Dr. Hunter has that specific knowledge on the botanical side.

Chief Standing Bear also understands the importance of data and science, so I think it would be neat to pursue studies side by side between LORC and our bison preserve or at Harvest Land. Foraging with bison, or prescribed burn studies, some kind of comparative analysis I think would be really interesting. We do patch burning on the bison preserve with The Nature Conservancy and try to mimic historical fires, not these complete landscape burns. Some of these massive ranches here, they’ll burn tens of thousands of acres every year because that’s just what you do, so trying to change that mindset is hard. We had a big uncontrolled burn here last week that was devastating with the wind, and then on Monday one

of the cowboys at the ranch said his rain gauge showed over 12 inches of rain. It's been very extreme.

In 2025, plans for a weather station at LORF were initiated, which can provide a source of long-term continuous data on climate conditions parallel to other research and demonstration activities. Research at these farms is often conducted with graduate students in the School of Natural Resources. The Center for Agroforestry's graduate program is largely for online students, but Graduate Research Assistants join the program in-person where resources are available to support their interests. Summer research internships (currently supported through NSF Research Experience for Undergraduates) are also available for students studying at other institutions. With Haskell Indian Nations University, a 1994 Land-grant University, relatively close by in Lawrence, Kansas, Osage students studying there or closer to home in Oklahoma would still have an opportunity to engage with research at LORF through these summer programs.

SJ: The research has to happen, and if it is in partnership with Osage Nation, even better, but the partnership with Osage Nation can be more than just research. I think there are a lot of opportunities on training and education, similar to what you got started with your NIFA grant.

If someone from the Osage Nation wants to come and pursue a PhD or a Masters, I think we should give them those opportunities, and I think we have the resources to do that.

Gene: One of the things Doug was very high on was helping students. It's outlined in the MOU to provide funding not just for graduate students, but

students at all levels. I would like to see this prioritized. Doug was also really excited about the Timber Stand Improvement; I would like to see that continued. The third thing I would really like to see is some fencing to start doing sheep or goat silvopasture. That would be easy to put in place and his endowment could fund a graduate student, a Masters student to do that work.

Locally, forest landowners in the Northern Ozark Highlands would benefit not only from understanding opportunities for working with native plants, but also from better forest management for silvicultural applications. As Gene pointed out, TSI and grazing align with the land's capabilities, Doug's intentions, and demonstration of land-based economic potential. Research at land-grant universities is intended for precisely this type of translation for improved community outcomes.

Tricia: As far as research, there's a lot of opportunity for agroforestry projects, for showing what can be done. Gene Garrett started that with the loblolly pines and the timber management. There would be interest in helping people know how to manage nuisance plants, to bring more habitat for the wildlife that are important to this area. One of the things people remember is the prescribed burning training, but there's opportunities to offer educational programming that's practical for people here too, like a chainsaw class.

Gene: One of the things that Doug thought was most important from the beginning was the dimension of TSI, getting it done. Early on, we had a student on the outskirts of St.Louis do the TSI. We started up on that ridge across from the barn and worked our way down. When Doug passed away, we were probably three quarters of the way I'm guessing. The work has never been continued. When

> he passed away, it all stopped right there. So one of the first things I would advocate for is to continue what Doug wanted, and that is continuing with the Timber Stand Improvement, getting that finished.

With many ideas on the table, what unfolds may in part be guided by the capacities of those undertaking the work, the resources available to us within and beyond the farm's endowment funding, and available infrastructure on site. Understanding our respective roles and capabilities can help identify open pathways to take action where there is support and readiness for movement.

> **Joann**: I think everybody on the advisory committee has my problem: we have great ideas but we don't take the time to follow through. I can give you all of these ideas, but I can't race out there and build a building and staff it; I don't have the wherewithal or the knowledge of where to go to get that started. The people on the committee who are directly connected with the University could look to some of us for support, but they're the ones in a position to take action, to initiate these things.

> **Hannah**: What your comment brings to mind for me is how we all need to have some idea of the role we can each play, because we at MU might have the resources to pursue some ideas, but we also need to have local buy-in so we're not making decisions that aren't in line with what folks locally or Osage Nation members might want to see there, and what's truly feasible.

> **Dusty**: My role is a little different now; I oversee all the research farms in central Missouri, and Land of the Osages is kind of an odd man out in many ways, because it's been given to the University, but under the umbrella of the Center for

Agroforestry. So it's an Ag Experiment station property, and needs some support from the Ag Experiment Stations, but then really it's the Center for Agroforestry that should guide what goes on there, and so that's both cool and a little bit challenging sometimes. I was pleased to work with Sarah, and then with Ben [Knapp, interim director following Sarah's departure], and I think Ron's [Revord, current UMCA director] going to be just the same, that we just communicate and the division of our roles makes sense. My understanding is that I oversee essentially management and support of that property, whereas the research driver comes from the Center for Agroforestry. While I'm in my role, we'll try to honor that non-conventional ag priority and respect for the direction the Center for Agroforestry provides, and then I'll work to allocate people and equipment and resources to support that.

Planning is a little bit about conceptualization and some of the actual boots on the ground, what's going to happen. In my role overseeing area management and the land, some things are going to be ongoing like fence maintenance, mowing, supporting events with tents or whatever, haying and some general farm operations. But as we look forward, there needs to be some research down there, so I think this process of making money available to support research is going to be a critical driver that will dictate some additional management on the property. I see the research as critical to who we are. And I see the relationship with the Osage as critical to what that property is and broader potential benefits as well.

Creating multipurpose infrastructure that can serve as a bridge for community value and learning

Currently, activities are recognized as somewhat constrained by available infrastructure on the farm. The old barn is a basic shelter that now also has available power outlets; a modest house can accommodate small groups with its four bedrooms; and a machine shed protects equipment and supplies. Improving the site for human use and research activities requires major investments, calling for a clear understanding of priorities and uses for cost effective planning and development.

> **Dusty**: One of the challenges is that distance is always difficult to bridge. And in my role, I find that even true for me of Land of the Osages, which is the furthest from campus that I manage, and it doesn't have anybody on site 100% of the time. Right now, our finances down there are doing really well, but it's also very easy to tie up money in people, and it's important for us to have some money flexible enough to support granting opportunities to get more research down there. I think it'll become more necessary to have somebody down there more frequently, especially if you start having livestock, then they need daily checking in and maintenance.
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> **Hannah**: It kind of seems like a chicken and egg situation, or that everything has to be timed together for infrastructure and activities.
>
> **Dusty**: We have discussed whether dormitories might help support internships, visiting researchers coming down there. Doug's initial plan was for a lab area and other things including a bunk house. We just never developed that, but facilities are something that we just need down there. Where they're placed, what they look like, what they offer - those things are open for discussion, but I would see us pursuing some of that in the near future, within the next five years. Facilities

would anchor the property and create opportunities for building relationships, both locally and with Osage Nation.

Gene: Doug had drawings already for a major structure, probably a million or two million dollar structure. It was going to go where we had started the TSI, overlooking that valley across from the barn. We actually started the planning to the point that we were running electricity and telephone connections up there, and we started plotting the road. It's just past the barn on the north side of the road maybe a hundred feet in and goes up to the top of that ridge. We had them start to cut a road up there and we had them run electricity halfway up that slope. It was to be designed for faculty and students, living quarters, places where meetings could take place, and one modest wing on it that Doug put in for himself. If he hadn't passed away, this would've happened within months. He had bought more land on top of the ridge on the east side that he was going to use to access it. He was afraid he couldn't depend on that west-side slope in ice and snow.

In addition to housing for researchers and lab space, multiple people also highlighted the potential for infrastructure to support community value and understanding, as a location for learning about the history of the farm and surrounding area, as a space for the types of community gatherings Doug had envisioned, and even for recreation so long as research activities and cultural resources are not disturbed.

Sarah: It would be wonderful to have infrastructure and interpretive areas that really tie into the historical aspect of the land and that are educational, informative. This should include some sort of structure where you could have

gatherings that are substantial enough in size, where retreat type activities could happen.

Tricia: There's been some talk about a building, and I think there's many arguments for that. It can be a gathering place for community, for presentations, for the Osage to come and educate. I would like to see the Osage come and share their vision. I mean part of this is about appreciating this area and what Native Americans brought to it, and what's being done now. So I'd like to see even a museum type space for the Osage culture and that references Doug Allen's vision too, and a gathering area for groups. An archery range would be a fun way to engage the community and also honor Doug's history too. You could always set aside some park like area and trails for people to come enjoy that doesn't interfere with things.

At the same time, it's a research farm, so you need to keep it kind of protected. You can't have people out running around where there are research plots, but you can invite people out. My Master Naturalist group would love to come out here again. When I talk to them about this Center they go 'what? Where is that?' Almost everybody says that. I think our local area would really embrace the opportunity to see what's going on out here.

Joann: Why not have a place where the community and kids in particular can not only learn about the Osages, but also learn about what they did, how they used this land? We've talked about having a building. Why not have it be a cultural center, and also a space the community could use? People like Dr. Hunter wouldn't have to be there, but recorded presentations with pictures could be there

for excursions with school kids. Research is great, but boy wouldn't it be nice to have a little cultural center there that the community could use, the Master Naturalists, school groups.

Hannah: I would love to see more opportunities for the land-based research to be integrated with culture too, and I hope this narrative can be an entry point for that.

Joann: And just because it's a 'cultural center' doesn't mean it couldn't also show results of research. There are lots of people in this community who would be interested in that, who would come visit just for that reason, or to have seminars there. And the schools here have outdoor classrooms, they're learning outside and connecting to nature. It's just another step or two to get into the history of the land.

Joni: I hope that one good thing that could come out of the University owning it is that it can be open to everybody to come and participate on the land and learn together. Maybe even have some facilities like campsite areas that people could use. Having a building where you could go to learn the history and a little conference area would be really helpful, and then you could show different farming techniques with traditional practices and local knowledge. I know it's idealistic to say, but I hope we can just all get along and move forward in an inclusive way.

Where do we go from here?

Narrative inquiry is a methodology rooted in dimensions of temporality and relational dynamics; the stories we tell are ongoing and rarely have discrete beginnings

and endings (Clandinin et al., 2007). Knowledge as relational systems are inherently informed by existing and newly emerging connections (Wilson, 2008), and "our methodologies need to account for the dynamic processes by which knowledge is produced" (Davidson-Hunt & O'Flaherty 2017, p.293). Ethical engagement with stories that are continuing to be lived requires adaptability and trust, that what is shared is recognized as a snapshot of our memories and hopes, and that our continued reflection can affect how we understand our experiences as time goes on. In this way, I am privileged by the nature of my connection to this group of participants. My work is tied to this circumstance beyond the bounds of this dissertation, beyond the moment of sharing this narrative. In this way, I have a responsibility to be accountable to how it is shared for the benefit of future applied learning and collaboration. I also have a sincere interest in seeing these values and priorities made real on the landscape, in our research and outreach activities, and in our commitments to each other.

Reflections on process

When asked how (or even *if*) this method for place-based participatory farm planning could be meaningfully replicated at other sites, issues of time and effort inevitably surface. Narrative inquiry is a time-intensive method, and the degree of effort required is not practical nor feasible for many in positions responsible for university farm planning. Over the years since I started this PhD program, a relationship to *time* has been a recurring theme in my own experience and what I witness for others, whether as an urgency for tangible outcomes, or as judgment about what or who is deserving of our time (Odell, 2019; Burkeman, 2021). In research that centers trusting relationships between researcher and participant or co-researchers, as in narrative inquiry and

Indigenous methodologies, the challenge of time constraints are also emphasized (e.g., Datta, 2019; Hultine-Massengale, 2018; Snow, 2018). Through critique of epistemology and pedagogy in place- and identity-based art, Leddy & Miller (2020) elucidate this concept: "...by combining *slow* and *Indigenous* pedagogies into a practice of inquiry-art-making, an opportunity arises to think critically about what it means to be *from* somewhere, or to *live* somewhere" (p.269). With this approach, we might also ask ourselves *what it means to do research somewhere*, locating place in our work not only in terms of climate and soils, but in its relationship to the past, present, and future land stewards who have shaped these ecosystems.

Granted this is a time-intensive process, research farm sites and their activities are major resource investments for universities meant to affect relevant land stewards' knowledge and practice. A thorough understanding of community-based objectives would support impact-oriented resource allocation at these farms, particularly where place and social contexts make for distinct community needs. For instance, the Horticulture and Agroforestry Research Farm has been home to important tree crop breeding for decades; this work serves the broader agroforestry community by making improved plant materials available. These plant materials can be trialed beyond our region, but the farm's situation in the Missouri River Hills presents an opportunity to specifically reach and engage that region's producers, their interests and capacities. The highly erodible and well drained loess soils there make for ideal chestnut, pecan, and walnut production; a culture around these crops increases their marketability, and an understanding and appreciation for each of these place- and people-informed factors has the potential to improve our ability to ask meaningful questions and effectively translate research that happens there. I am aware of

the privilege I have in my ability to focus on this effort for LORF, and to dedicate myself to these big questions as part of a graduate program. In land-grant university spaces, we might continue to ask ourselves how we can commit the time and effort needed to meaningfully serve communities in place by knowing them well.

Relational in-depth interviews can yield a nuanced contextual understanding; yet there are limitations to this approach. Within these conversations, most participants (including myself) referenced gaps in our memories. Where possible, we looked through emails or archived files to find the dates of certain activities or the way things were communicated. Fortunately, formal documents like the MOU between Doug Allen and the University, minutes and recordings from Advisory Committee meetings, and handwritten letters and notes all contributed to verification of our storied memories. Still, our experiences are filtered through our identities, and the way we understand a narrative can change as people with novel insights and unique backgrounds become integrated into this ongoing story. In this way, this narrative and meaning making through its analysis is a representation limited to/by our current awareness, understanding, and positionalities.

An ongoing commitment to honoring legacies, responsive research and education, and actionable outcomes for community engagement in place will be most effective with continued attention to reflexivity and intercultural respect and exchange that accounts for the limitations of each of our perspectives within dynamic dialogic networks (Probst & Berenson, 2014; Watt, 2007). The reflexivity component of this inquiry may be an opening, but it need not be the only opportunity for this group to grow self- and situational awareness. The LORF Advisory Committee might consider returning to questions around how our respective identities affect our experiences and assumptions

related to LORF, and relevant critical questions for intercultural research planning and products (Smith, 1999; Davidson-Hunt & O'Flaherty, 2007; IPSSG-AAG, 2010). The following prompts relate to each of the values and priorities outlined by participants, as a starting place for continued invitation to reflexive evaluation:

1) In order to honor legacies of people and place, *how will local and Indigenous knowledge (as complementary but different from scientific knowledge) be recognized, valued, and protected ?*

2) When committing to community-based and culturally-responsive activities and infrastructure, *who or what will guide the pace and direction of research and outreach activities there?*

3) And practically, *how can we effectively demonstrate our commitments to local and Osage interests within the guidelines set forth by Doug Allen?*

Attention to these types of questions among LORF decision-makers and co-inquirers has the potential to yield a foundation for relational accountability (Salmon, 2000; Wilson, 2008) by stressing our responsibility for addressing inequities inherent in the dynamics of navigating tribal-institutional long-term planning (Smith, 1999). Open dialog around these important questions will require dedicated time for discussion, but it need not limit actionable commitments and tangible outcomes. Reflexivity prompts can be provided in advance of more frequent Advisory Committee meetings, and facilitation can direct the dialog to specific practices relevant to a given research activity planned for the farm.

The process I endeavored to fulfill for LORF is similar to in-depth natural resource management planning methods that incorporate ecological reference with

community voices through interviews or focus groups and document review (Folke et al., 2005; Datta, 2019; MacMynowski, 2007). However, what I have presented is unique in its presentation as a dialogical narrative collage, which lends itself to a more authentic, whole, and relational picture of this place, particularly in our collective meaning-making over time. From this sequential narrative approach, we can identify impactful activities and moments of shifting understanding. Among these are Doug Allen's expanded interest in Osage culture resulting from his presence on a potentially significant area on the land, Gene's prompting, and his own independent research. Dr. Andrea Hunter's Advisory Committee presentation also profoundly affected advisors' perspectives on the importance of Osage involvement and shared cultural awareness. More incremental shifts include the relational trust in UMCA land stewardship manifested in Doug Allen's gift; MU leadership's acknowledgment of a slower pace of engagement since Doug's passing; and a growing embrace for the relational connections we have cultivated over annual visits. As we progress into the next chapter of engagement at LORF, we can apply ourselves to the types of work that will further incite movement toward expanding potential for research, shared understanding, and accountability to each other and to place.

Next steps

An important refrain in these narrative conversations was the need for us to consider what we *can* reasonably accomplish at LORF. The realities of our respective roles, capacities, and limitations (distance, time, finances), are complemented with an

abundance of interest and opportunity. Several thematic research areas were shared that could involve a paced approach to addressing culturally relevant questions and topics.

Native plants, especially medicinal forest botanicals, were of particular interest for Doug Allen, and that interest is matched in both local and Osage advisors. For Osages, the plant survey completed in 2024 supports an understanding of "what's out there now and what could be reintroduced" for educating Osage youth about identification, uses, and stewardship (Hunter). Locally, perceptions of native plants as "weeds" could be reframed through programs that help the community understand the role of native plants as opportunities for ecologically sound enterprises (Barrett). Given expressed local interests in returning to self-sufficient small-scale homesteads in that area (Harper, Barrett), native plants programming can further enhance resilient edible and perennial landscaping practices for ecological awareness and food security (Lovell). Just as Osage Nation's Harvest Land plots now include pawpaw and elderberry, marketable species like these that would thrive at LORF are prime for this type of demonstration given staff presence for management. Concern for cultural appropriation and opportunity for cultural awareness both have potential implications with research on native plants.

The quality of existing installations on the farm is variable, but they also have potential to be revived for research where interests and funding opportunities align. The centrally located pitch-loblolly pine alley cropping plots have matured and the forest farming plots have persisted. Given its central location, the pine alley cropping would be in a prime area for demonstration, and the forest botanicals are currently being evaluated for the extent of their regeneration. The effort that would be required to restore the "jungle" of chestnut, walnut, and pecan in the southeast corner of the property may

outweigh the potential benefits, especially while there is no full time staff at the farm. However, it demonstrates the importance of adequate maintenance even for orchards protected from predation, and might serve as testing grounds for the impact of fencing on wildlife presence using trail cameras or audio recording devices that do not require continuous presence. For conservation professionals, this type of research could help clarify gaps in our understanding about agroforestry's support for (or hindrance to) conservation priorities. Equally important according to Doug Allen's written interests and work completed during his life was the value of silvicultural practices that align with ecological health and economic potential through timber and non-timber forest products. The Forest Management Plan completed in 2025 outlines activities to continue this activity following cultural survey clearance, which is also scheduled for continuation in the coming year.

Forest farming and silvopasture, practices of interest for research and demonstration at LORF as expressed by both local community members and Osages, are two of the most contentious in the conservation community, largely because of the dangers for mismanagement, or for management that does not support conservation objectives. For example, there are intensive forest farming enterprises that focus on single understory species like Ginseng requiring the use of fungicide, pesticide, and wildlife deterrents to avoid losses of the valuable crop (Feibel et al., 2024). Likewise, observations even at LORF of the mismanagement (prior to Doug's stewardship) of livestock in the woods -which is *not* silvopasture, but is often confused for it- and its ill effects results in understandable skepticism. Doug Allen's documented objectives for the site instead focus on ecological health, a respect for the Ozark environment, and practices

that support wildlife habitat conservation. Forest farming and silvopasture practices *can* align with those priorities, and any research and demonstration should take steps to ensure that complementarity.

In 2025, an RFP for research projects (Appendix D) to incentivize activity at LORF was reviewed by the LORF Advisory Committee and sent to faculty at MU and to partners at Osage Nation. A dedicated sum of funding from the endowment will support projects with budgets up to $50,000 that align with the LORF mission “to support research and adoption of agroforestry practices and principles that incorporate, respect, and value the Osage Nation culture and support CAFNR’s vision and mission in its Drive to Distinction of a ‘healthy world’” (LORF Bylaws ratified in 2023). They were also evaluated based on relevance to current issues, sound methodology and a reasonable and appropriate budget. Five submissions were discussed during the April 2025 Advisory Committee meeting and three were selected for funding. All were in favor of the project “Assessing the Survival and Expansion of Four Native Forest Herbs in a Missouri Ozark Forest Farm” (Knapp, B. and Kronenberg, R., PIs) which expands on the forest botanicals research established by Badger Johnson in 2015. Also accepted were the projects: "Implementation of a Missouri Mesonet Weather Station at Land of the Osages Research Farm for Enhanced Agroforestry Research” (Leasor, Z. and Travlos, J., PIs), and “Assessing the Establishment, Persistence, and Management of Native Cool-Season Grasses Planted in Existing Native Warm-Season Grass Ecosystems” (Naumann, H., PI). These projects assume that any needed cultural surveying will be completed in advance of potential disturbances. With the exception of Raelin Kronenberg who contacted Osage advisors for input prior to submission, none of the proposals directly involved Osage

partners, lacking existing relationships with Osages as co-researchers or co-PIs, or even as valued advisors. This point was raised during evaluation of the proposals, and reinforces the need for improved intercultural understanding and engagement as a precondition of research activities.

The importance of local and Osage relevance was stressed in the RFP and is a core value shared by participants in this narrative. However, advance engagement is not always understood as essential for relevance by Western academic standards. As I experienced in my own blunder with grant proposals, unchecked habits and assumptions can result in misaligned outcomes. If we are to adhere to a commitment to culturally responsive research, principal investigators entering into work at LORF will need to be invited into opportunities for authentic connection and mutual understanding (beyond topical relevance). Transparency about expectations for relational ethics *in practice* can help ensure that the LORF advisory committee and relevant participating researchers, students, and community members enact culturally relevant and meaningful land-based activities (Howard, 2022; Latulippe, 2015). Greater clarity about practices that reinforce our values may also aid us in identifying opportunities with greatest benefit and anticipating risks and ways we can address them preemptively. For a slower-paced approach to relational accountability in advance of submitting a proposal for funding and research at LORF, other methods of communicating about the farm's and our institution's history, placement, and relevant opportunities there can also support partnership rooted in authentic shared interests and mutual care (Caine et al., 2019; Lisko, 2022).

An "ethical space of engagement" for cross-cultural collaboration asks us to reconcile worldviews (Ermine, 2007), to create an opening for humility, authenticity, and

ongoing learning. At times, it feels as though we are still finding our footing at LORF, learning about our own history and each other's, and about the place itself and its potential as a research farm. How can we incentivize research at LORF without sacrificing the quality of our relationships and goals? Will future farm leadership be able to sustain a commitment to the values espoused by Doug Allen and the farm's current group of advisors? How can the values expressed in these conversations be clearly communicated to the next generation of LORF researchers? This farm presents a unique opportunity for intercultural research that begins to reconcile the distance between academic and local knowledge, between Osages and their ancestral lands, and between agroforestry research and its traditional place-based and culturally-informed applications. The participants in this inquiry seem to grasp the significance of this opportunity, and it is our collective responsibility to ensure that significance is appreciated.

In practice, an appreciation of place-based and community-informed research farm direction can be achieved through translational engagement, education, and exchange. The effectiveness of outreach events, field days, youth programs, and informative Advisory Committee presentations for this site demonstrate the importance of these activities on ecological, historical, and cultural awareness. Doug Allen mandated this aspect of research farm activity, and new mediums for this work exemplified by the story map developed for this farm further enable presence across locations through online and virtual multi-media.

This case study of Land of the Osages Research Farm, through layered geography and dialogical narrative collage, supports a move towards relational accountability to place and people at this institutionally managed and interculturally informed research

farm. Through a meaning-making participatory analysis, the emergent lessons, values, priorities, and actionable next steps serve as a map for (and with) LORF's advisors, managers, and current and future PIs. While this approach may be prohibitively time-intensive, land-grant universities might fulfill their simultaneous directive for research, teaching, and education by engaging students, faculty, and their communities in shared place-based planning and advising efforts as a product of research; and through these efforts, prepare the ground for re-rooting Indigenous stewards and their traditional ecological knowledges in the future of land-based research and education.

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Appendix A: Consent to Participate in a Research Project

Project Title: A Narrative Inquiry of Land of the Osages Research Farm Engagement

Principal Investigator/Researcher: Hannah Hemmelgarn, PhD candidate, Assistant Director of the University of Missouri Center for Agroforestry

IRB Reference Number: 2105106

You are being invited to take part in a narrative inquiry of experiences related to Land of the Osages Research Farm. You must be 18 years of age or older to participate. Your participation is voluntary, and you may elect to end your participation in this project at any time without penalty.

Land of the Osages Research Farm (LORF) is the newest addition to the MU Agricultural Experiment Station (AES) system. As a case study of research farm planning that centers relational accountability through respect and responsibility between partners, the purpose of this project is to create an opportunity for those who have been involved with LORF planning or other activities to share their experiences of and insights about this engagement to highlight ways the farm leadership can support relational accountability as part of meaningful future research partnerships between members of Osage Nation, the local community in Morgan County, MO, and MU faculty and staff.

Should you agree to participate, you will be asked to take part in a semi-structured interview recorded via Zoom or in-person at a time and place of your choosing. The interview is expected to last approximately 40-60min. Following completion of the interview, you will be provided with the full transcript and initial identified open codes for your review, comment, and clarification. You will also have the opportunity to review any final written materials from this inquiry.

In gratitude for your time, we will send a thank you package of local agroforestry products.

Due to the community-based participatory nature of this inquiry, you will have the option to elect the degree of confidentiality you prefer, whether full confidentiality (totally de-identified or using a pseudonym to protect your identity), selected confidentiality (identified or not in each specific contribution according to your preference), and/or as a named overall contributor.

If you have questions about this study, you can contact the University of Missouri researcher at hemmelgarnh@missouri.edu or by phone at (573)882-8321. If you have questions about your rights as a research participant, please contact the University of Missouri Institutional Review Board (IRB) at 573-882-3181 or muresearchirb@missouri.edu. The IRB is a group of people who review research studies to make sure the rights and welfare of participants are protected.

You can ask the researcher to provide you with a copy of this consent for your records, or you can save a copy of this consent if it has already been provided to you. We appreciate your consideration to participate in this inquiry.

Appendix B: LORF Narrative Conversation Guiding Questions

1. How did you first become connected with Land of the Osages Research Farm (or the site before it was named)?
    a. What do you see as the significance of this farm (for you/ your community)?
    b. How does your awareness of the history of the land affect your understanding of its significance?
2. How else have you been involved with the farm since its opening in 2019?
    a. What are your impressions of the activities you've been involved with?
    b. Specifically regarding interactions between MU, Osage, and/or the local community?
3. Do you have any relatable experiences that could inform how we move forward together?
4. What do you envision for LORF in the future?

Appendix C: Reflexivity Prompts

Reflexivity Prompts

Reflexivity is a practice of critical reflection about our identities and relationships to others, to processes, and to systems of power and other social structures (Call-Cummings et al. 2023). Like a physical reflex, an involuntary automatic action in response to a stimulus, our patterns and behaviors are also affected by social, cultural, and political underpinnings and experiences. A reflexive practice can lead us to see some of the sources of those patterns and to consider how these influences shape the work we do (including acknowledging and addressing biases and our unique perspectives in a research context). As such, reflexivity is rooted in ethical and transformative research commitments.

These questions and their sequence are informed by multiple sources that have contributed to my understanding of intercultural competencies development (IDI, 2020; Tyson & Ferguson, 2023), community-based participatory research ethics (IPSG-AAG, 2010; Tobias et al., 2013; Wilson, 2008), and aspects of positionality and reflexivity central in participatory inquiry (Call-Cummings et al. 2023).

Your responses to these reflexivity prompts can be entirely private; solely intended to incite novel connections and reflections about our identities, contexts, experiences, expectations, and interests.

(1) Personal positionality

How do you define yourself? Write out each of your multiple and intersecting identities (race, ethnicity, class, gender, education, career, affiliations, affinities, and roles etc.) and consider how your day-to-day experiences are affected by these identities.

How do these lenses affect the way you relate to your work and to your community?

(2) Commitment to pluralism

The University of Missouri espouses intellectual pluralism[1], demonstrated with "a commitment to act ethically, to welcome difference, and to engage in open exchange about both ideas and decisions."

Reflect on experiences when intellectual pluralism has been supported or challenged; what can be learned from those experiences about effective ways to enact a commitment to pluralism?

(3) Personal and community-informed interests and direction

What are your personal and professional interests and goals related to land-based research and outreach? These may be governed by your own interests and/or the interests of your employer(s) or community members (and they may certainly extend beyond the

ecological/ physical dimensions of agriculture and natural resources into social, cultural, or economic areas).

Who is affected by this work, and how/ are they involved?

(4) Visioning and defining culturally relevant research

Envision a research or outreach project at LORC (in a focus area of your choosing).
Who or what is guiding the direction and pace of the project?
How does the project respect and value Osage culture and local ecological knowledge?
Who benefits from the project, and who has access to/ ownership of the data and products?
What are the motivations and intentions of the researchers?

1 The essence of intellectual pluralism is that "the expression of both academic rights and responsibilities is required for a reasoned and respectful debate that explores a diversity of views and perspectives about complex, and often controversial, topics" https://oai.missouri.edu/about/intellectual-pluralism/

Appendix D: Land of the Osages Research Farm Research Fund

Land of the Osages Research Farm Research Fund

The Land of the Osages Research Farm (LORF) is a 550-acre property within the Central Missouri Research, Extension, and Education Center of the University of Missouri Agricultural Experimental Station. Located in Gravois Mills, MO, along the shores of the Lake of the Ozarks, LORF includes a mixture of upland oak-hickory forest on gentle rocky slopes and pastures that stretch across flat valleys extending from the lake. The property was donated by Douglas T. Allen along with an endowment to support farm operations and activities. The mission of the Land of the Osages Research Farm is to support research and adoption of agroforestry practices and principles that incorporate, respect, and value the Osage Nation culture and will support CAFNR's vision and mission in its Drive to Distinction of a "healthy world."

The Land of the Osages Research Farm Research Fund provides support for research activities aligned with the LORF mission. Each year, up to $50,000 will be available to University of Missouri faculty, staff, and affiliated partners to fund research or demonstration activities associated with the LORF mission.

Eligibility

Any University of Missouri faculty and staff are eligible to submit proposals for consideration. Partners from outside MU may submit proposals if the work aligns with the mission of LORF. Written proposals must be submitted for consideration. A Principal Investigator can have only one project funded per call but may have projects funded in subsequent years. Multi-year projects are allowable but will impact total funding availability in subsequent years.

Use of Funding

Funding is intended to support new or on-going research and demonstration activities at LORF. Allowable costs include:

- Graduate student stipend and benefits
- Supplies for field or laboratory research
- Travel costs to field sites
- Travel and registration for professional conferences associated with research
- Publication costs
- Costs associated with workshops and outreach events

The funds cannot be used to support salary of the Principal Investigator or tuition costs for students. Equipment may be allowable if clearly associated with research at LORF; equipment for general operations or other infrastructure will not be allowed.

Timeline

The deadline for application submission will be January 31. Multi-year projects may be submitted. Decisions will be communicated by May 15 each year and funding will be available July 1. An annual progress report will be due by June 30 following each funding year, and a final report will be due by September 30 following the end of the project.

Review Process

Proposals will be reviewed and selected by the Land of the Osages Research Farm Advisory Committee. Any research, publications, or recordings involving Osage Nation (individuals or groups) will be required to follow Osage Nation's procedure for review and approval. For more information about this procedure, contact Dr. Andrea Hunter ahunter@osagenation-nsn.gov.

Proposals will be evaluated based on the following criteria:

- **Does the project align with the LORF mission?**
- **Are the research objectives relevant to current issues?**
- **Is the project's methodology sound?**
- **Is the project budget reasonable and appropriate?**

Reporting Requirements

Each project will be required to submit an annual progress report due at the end of each project year. The annual report will describe progress towards objectives from the year. Accomplishments such as publications, presentations, workshops, and outreach materials should be listed and described. Any challenges or deviation from project plans will be described.

At the completion of a project, a final report will be due the following September 30. The final report will summarize results and findings towards project objectives.

Proposal Components

1. Project title
2. Principal Investigator(s)
3. Affiliation
4. Executive Summary
5. Project Description
    a. Background (up to 2 pages)
    b. Statement of objectives/hypotheses
    c. Methodology (up to 3 pages)
    d. Literature cited
6. Budget
    a. Itemized budget
    b. Budget justification
    c. Other funding supporting the work, if applicable. Matching funds are not required but may be considered favorably in evaluating proposals
7. Timeline and milestones
8. Other materials
    a. Principal Investigator CV
    b. Letters of support

Proposals should be submitted electronically to Caroline Todd (toddcs@missouri.edu).

VITA

Hannah Hemmelgarn is Assistant Director at the University of Missouri Center for Agroforestry, where she has worked in a full-time capacity since 2018. In this role, she oversees the Center's partnerships, communications, events, and research internships. Through network development and capacity building efforts, she has grown the Center's outreach arm from a single staff person to a team of five staff that support improved and expanded training, producer outreach, and academic productivity.

Her engagement with UMCA began as a Master's student and graduate research assistant in 2015; she completed her MS in 2017 on *Agroforestry Education for High School Agriculture Science: A Case Study of Novel Content Implementation*. Through that research, she developed an agroforestry curriculum and teacher training program supported by a USDA Sustainable Agriculture Research & Education Professional Development Program grant award (2016-2018) which received the Paula Ford PDP Proposal of the Year Award (2016), and evaluated the program and teacher efficacy with the material. That curriculum became integrated into Missouri's high school agriculture science standards in 2017.

As Outreach and Education Coordinator with UMCA (2018-2021), Hemmelgarn successfully sustained funding for programs such as "Agroforestry and Specialty Crop Development for Resource Stewardship, Livelihoods, and Vibrant Communities Across Missouri" (USDA NRCS Conservation Technical Assistance-EQIP, 2018-2021); and has continued this effort as PI on grants including "Agroforestry Outreach & Communications" (USDA FS National Agroforestry Center, 2021-2025), "Enhancing Agroforestry Technical Assistance & Training for Midwest Working Lands" (The Corps

Network), “Agroforestry Training for Natural Resource Professionals” (Edwards Mother Earth Foundation 2024-2028), “Establishing a Professional Agroforestry Certification and Learning Network” (USDA SARE PDP 2023-2026), and “Putting Maple on the Map in the Lower Midwest” (USDA AMS Acer Access & Development, 2021-2025). She is co-PI on numerous awards that highlight new and sustained partnerships.

Through her outreach and training work, she also increased engagement with UMCA through coordination of annual events including the Agroforestry Symposium and Agroforestry Training Academy. She has produced a podcast series on agroforestry, delivers regular outreach presentations at relevant public and professional events, is co-editor of the Center’s monthly e-newsletter “Action in Agroforestry,” and supports annual revisions to the Center’s training materials. Recognizing the breadth of her work, in 2021 she received the Association for Temperate Agroforestry’s Early Career Award in Outreach & Education.

Her interdisciplinary and experiential background contributes to a well-rounded perspective on network development and program design. She received a BA in anthropology and sociology from Truman State University in 2009, where she also taught student-led courses on grassroots environmentalism and ecological sciences, and completed a Permaculture Design Certification in 2009 in LaPlata, MO. During and after her undergraduate, she worked on diversified farms in Quebec (Jardins de la Montagne), Northeast Missouri (Sandhill Farm, Singing Prairie Farm, and The Possibility Alliance), and the Pacific Northwest (Aprovecho, Herb Pharm, Strictly Medicinals). Following a farm accident, she shifted to work in teaching, establishing an outdoor enrichment program called Wild Folk (2012) in Columbia, MO, and continuing her education

through the University of Minnesota, Duluth's Environmental Educator Graduate Certificate Program and as a naturalist educator at Wolf Ridge Environmental Learning Center in Finland, MN (2014-2015).

She has maintained active involvement in her community throughout her studies and career, from radio programs (*Environmentality* in college, and co-hosting *Farm and Fiddle* on KOPN in Columbia, MO) to environmental stewardship and education (Missouri River Relief boat driver and River Days instructor; Missouri Environmental Education Association Board of Directors, 2018-2019). Professionally, she also served on the Board of Directors for the Association for Temperate Agroforestry, as vice chair (2021-2023) and chair (2023-2025), during which time she led coordination of two North American Agroforestry Conferences: in Turrialba, Costa Rica (February 2024) and in Columbia, Missouri (July, 2025). She is currently co-chair of the Technical Assistance and Training Working Group with the Agroforestry Coalition.

Her connection with Osage Nation began in 2018 with a University of Missouri Division of Inclusion, Diversity, and Equity grant (2018-19) and has grown with LORF engagement since the Grand Opening in 2019. Together with Osage partners, she directs the USDA NIFA New Beginning for Tribal Students "MU-Osage Food & Agriculture Program for Tribal Student Engagement and Success" (2021-2026). Through those activities and ongoing professional development, she cultivates relational engagement with Osage youth and leadership in agriculture and education. In 2023, she received the MU College of Agriculture, Food & Natural Resources' Inclusive Excellence Award. Within and beyond this work, Hemmelgarn is committed to ethical integrity and shared success.