

RADICAL CARTOGRAPHIES: RELATIONAL EPISTEMOLOGIES AND
PRINCIPLES FOR SUCCESSFUL INDIGENOUS CARTOGRAPHIC PRAXIS

by

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ACKNOWLEDGEMENTS

This dissertation project is by far the most interdisciplinary one that I have had the privilege to attempt. The multifaceted nature of this kind of work is what continues to hold my interest in this field. The importance of land-based issues to Indigenous peoples is what inspires me but the critical nature of these issues to our future as Indigenous peoples cannot be understated. Land, ceremony and tradition are so inextricably intertwined and their value to our future identities is paramount. No other field holds as much importance to me personally or professionally. However, no one person can be an expert in so many fields. Therefore, I have many people to thank.

No dissertation project is ever conceived, researched or executed with the sole effort of a single individual. It has been my privilege to have received the benefit of many seasoned academics and professionals. For their inspiration, guidance and kind criticism I am grateful. Individually, they are the power players in their respective fields. But in working together to influence and expand my understanding of the intricacies and challenges with an interdisciplinary perspective, they are my Dream Team. I have been incredibly fortunate to have received the benefit of their wisdom and years of experience. Each one of you makes me a better professional, more empathetic teacher and a more exacting researcher.

In the portion of my undergraduate work completed at Kansas State University in the early 1990s, I had the distinct honor of being a student of Dr. Harald E. L. Prins, himself a student of Dr. Eric Wolf as well as a noted Cultural Anthropologist and Indigenous rights advocate in his own right. Dr. Prins worked among the Kayapó of Brazil as they sought to stop a dam project at Altamira from flooding their homelands. By

teaching me that Indigenous people can use Western technology to empower themselves while remaining traditional people, Harald demonstrated the influence that anthropological advocacy can have to restore homelands. I am grateful to Harald's wisdom and commitment to Indigenous land rights issues and indebted to him for passing these values along to me.

In my Master's degree program, Dr. T. J. Ferguson and his work with Native Nations in the desert Southwest stressed the multivocality of land-based Indigenous rights in his work with the Tohono O'odham Nation and many other Native Nations. T. J. ensured that my research was precise and my understanding complete as to the land-identity connection as expressed by many U. S. Native Nations.

In my first year as a Ph.D. student, I was challenged to now put these values and skills into action as I was fortunate to be assigned as a graduate teaching instructor to Dr. Benedict J. Colombi. It was Dr. Colombi who initially presented the idea of Indigenous people preparing their own mapping projects through Google Earth Outreach. Within the first five minutes this perspective both captured my imagination and set fire to my desire to work in this field. Ben ensured that I was able to expand my understanding of the critical nature of the environment and pressing environmental issues to Native people and stressed the importance of understanding these issues in a global context. Ben's work with Russian Indigenous peoples' struggles to preserve language and identity through mapping was truly the spark that lit the flame for this project and my future work. In addition, his work with the Nez Perce and other Columbia River tribal groups led me to understand the challenges Native people face today with respect to maintaining identity

connections to the land in areas with degraded ecosystems. Thank you for bringing this idea to me and for your profound influence in my work.

What makes this project unique is that my mentors are from many fields. This was intentional so I could fully comprehend the challenges that Native people face today not only with land issues and identity but also within the Canadian and U. S. legal systems. The courts are the ultimate arbiters of land-based rights in many cases and a project such as this would be incomplete without a deep understanding of the role of case law and human rights issues. Professor Melissa Tatum, Research Professor of Law at the James E. Rogers College of Law is a highly experienced legal professional who has worked with many Native Nations and is a brilliant strategist. Melissa's influence can be seen in my work as she has often remarked that "the devil is in the details." Her patient but unyielding demand that I not gloss over the issues but develop a full understanding of the inner workings of the complex maze of jurisdictional, historical and contemporary issues has made my work much better than it ever could have been without her. Thank you for encouraging me to always think ten steps ahead and for teaching me to navigate the maze.

As I wanted a deeper understanding of U. S. federal Indian law, I sought out the assistance of Professor Robert A. Williams, Jr., the E. Thomas Sullivan Professor of Law at the James E. Rogers College of Law. Rob is a scholar of not only federal Indian law but also international law, and noted critical race theorist as well as the Co-Chair of the Indigenous Peoples Law and Policy Program. It is his international perspective that helped me see the commonalities in the challenges faced by Indigenous peoples around the world and the profound and deep influence that English colonialism still has in the

courts today. Rob's breadth and depth of experience and his high expectations for my work have helped me to create a much better and more meaningful project than I ever dreamed possible. Thank you for showing me the benefits of broadening my perspective and especially for teaching me the importance of a post-colonial critical race perspective.

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DEDICATION

This dissertation is dedicated to my family and my ancestors. Everything you sacrificed has allowed me to be here in this moment. I hope I can rise to the expectations you had for me and in turn improve the lives of the generations who come after.

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ABSTRACT

Indigenous cartography is based on a relational epistemology that works within a system where “place” and “ways of knowing” are intimately tied to Native communities’ notions of kinship, oral tradition, and traditional ecological knowledge acquired over the millennia. It brings to life a place where mapping and geography cease to be simply Cartesian coordinates on a Euclidean plane and instead become storied landscapes. Indigenous cartography can be described as “radical” because it represents a departure from traditional Western ways of mapping and affirms an Indigenous political, economic and cultural sovereignty. As an intensely political act, Indigenous cartography can be an important tool used by Indigenous people to assert sovereignty in a bottom-up approach to land claims, in the management of cultural resources, and even to claim human remains for repatriation and reburial. If Indigenous groups wish to successfully utilize geospatial technologies as legal strategies, it will first require the development of the necessary infrastructure and training of Geographic Information Systems (GIS) specialists from within. In much the same way that colonial practices of the past worked to achieve hegemony through the making of political and cultural boundaries, Indigenous cartography can work to dismantle these same colonial boundaries. A theory and methodology of Indigenous cartographic praxis is in use among some First Nations in British Columbia. However no “best practices” yet exist for the Indigenous use-and-mapping discipline. Consequently in the United States, Indigenous mapping is still considered an emerging approach. Therefore, can American Indian political and cultural sovereignty be supported by the implementation of Indigenous geospatial technologies?

This dissertation will examine the British Columbian model and distill principles that can be successfully implemented by U. S. Native American communities who wish to develop capacity for this emerging geospatial technology based on the success of the First Nations model.

IN SEARCH OF *SUI GENERIS*

Can American Indian political and cultural sovereignty be successfully supported by use of a distinct Indigenous cartography? The goal of this dissertation is to understand the many and varying perspectives on the *status-quo* of Indigenous sovereignty among Canada's First Nations as expressed through the practice of cartography and then make recommendations of ways that the practice of Indigenous cartography can reinforce, reassert or even expand those rights among Native Nations in the United States. The interdisciplinary nature of this work is due to an intentional fusion of the disciplines of geography, cartography, cultural anthropology, history, American Indian Studies and Indigenous experiences in order to examine how all of these might better inform American Indian law and policy concerns. The multidisciplinary focus of this dissertation is the outcome of the ways in which it has sought to employ the broad bases of university disciplines engaged, the theoretical and methodological frameworks utilized, and the many First Nations and Native American viewpoints, experiences, and commonalities that it seeks to incorporate. This highly multidisciplinary approach is a premeditated and carefully calculated one.

In the past, academia has categorized Native Studies as an anthropological or historical discipline. These approaches tend to place Native people in categories that reflect an Anglo-American view that Native people only exist as exotic specimens for study in an historical model (Bhabha 1994, Said 1979) which disempowers Native communities and denies their place at the political negotiating table. According to S. James Anaya, former United Nations Special Rapporteur on the Rights of Indigenous People, "we are in a rare moment of potential transformation, of a tectonic shift toward a

new era of human relations that extends the promise of justice beyond the boundaries set by the past” (Echo-Hawk 2013: x-xi). This colonial past is the commonality shared by all groups examined in this dissertation project and the future actions, reactions and interactions of Indigenous peoples and former colonial governments represent a moment of true *sui generis*—unique and unprecedented in any historical or modern context. When we can overcome the common misperception of Native peoples as passive victims of history and embrace a human rights model of land rights rather than a colonial one, we can move toward an era of reconciliation that restores and empowers Native peoples’ inherent rights (Ibid.) The way in which it unfolds will forever change the face of Indigenous and colonial relations.

For Indigenous peoples, the political realities of today are the devastating inheritance of past colonial dicta and makes a work such as this a worthwhile pursuit. It forces us to come to terms with finding a new common ground which takes into consideration both a modern-day cartographic reality informed by a legacy of colonial legal theory and explore its intersection with Indigenous land-use practices sustained by thousands of years of traditional knowledge and wisdom. It is from this colonial-Indigenous nexus that the new discipline of Indigenous cartography emerges and necessitates the articulation of a new framework that can help Indigenous people push beyond the constraining colonial boundaries of the past.

Part of unraveling this colonial entanglement with lands and peoples necessitates the recognition of the colonial framework that still pervades U. S. land laws and making efforts toward decolonizing law and language usage as well as political boundaries. Often even the simple use of words to describe people can be loaded with either

dismissive racist undertones, or perhaps even more commonly, well-meaning yet condescending labels that dismiss Indigenous people into the realm of historicity within the larger American metanarrative rather than the vibrant, authentic, resilient, modern communities that they are today. In this work, every effort has been made to describe Indigenous peoples in ways that are respectful, accurate, and work towards dissolving the stereotypical mythologies that seem to surround Indigenous peoples in mainstream culture.

For this dissertation, the terms Indigenous and Native are used somewhat interchangeably depending on the context in which they are presented. In many older works, the word Indigenous was used to describe Native people outside of the United States and Canada. However, more modern usage such as that used by the United Nations Permanent Forum on Indigenous Peoples employs the word “Indigenous” to describe the original peoples of any lands. The term First Nations is somewhat broadly utilized here when referring to Indigenous peoples of Canada and likewise the words Native American are used when specifically referring to the broader groups of Indigenous peoples of the United States. In similar ways, descriptive words such as tribe or Indian may convey many meanings depending on the region and context in which they are applied.

My personal experience is that of a larger group of Oklahoma Indians who were removed from our homelands in Mississippi under the Indian Removal Act of 1830. Less than two generations later, we were removed again from our new settlements under the General Allotment Act of 1887, also known as the Dawes Act. This U. S. land policy was devastating for tribal groups and for my own family’s Indian identity. Our identity is tied to our lands—not just our original homelands, but also to our lands in Oklahoma and the

ways in which we refer to ourselves is a reflection of those specific regional ties. For example, as a Mississippi Choctaw woman from Oklahoma, regionally we often refer to ourselves and other regional Indigenous groups as Indians. However, in other regions of the United States, this is not the case and the preferred term is Native American. Other U. S. Indigenous people view the term Native American as a politically correct convention and prefer the term American Indian. In this work, I follow the practice of capitalization using the example set by the United Nations and will capitalize the word Indigenous rather than following the ever-changing conventions of upper-and-lower case presentations. Obviously a concise terminology does not exist that can satisfy all people in all instances. Therefore, for the purposes of this work the terminology employed will be somewhat general in nature but at times will be specific to a region and may often reflect my own cultural preferences as an Oklahoma Indian woman.

At its core, cartography is mapmaking. And although today's mainstream conventions presuppose that maps are either printed on paper or are produced in a digital format, maps cannot be constrained to only these configurations. Maps may also be cognitive and exist in the mind, whereas some are oral and are retold as stories. Just about any medium can be used to record landscapes, pathways, or places and we must open our minds to the infinite possibilities in which places can be represented. Some readers may question the validity or authenticity of creating representations of space that could fall outside the mainstream discipline of geography, or more specifically, scientific cartography.

In a Western paradigm, the practice of creating maps has usually been linked to defining political boundaries, the establishment of ownership, and notions of hegemonic

power (Wainwright and Bryan 2009, Peluso 1995). “Thus far, Western cartographic techniques and technologies have overwhelmingly been used to present positivist representations of space, although some mapmakers are beginning to expand these tools in innovative ways” (Wickens Pearce and Pualani Louis 2008: 107). Many of these “innovative ways” involve traditional Indigenous wayfinding practices and ways of knowing the world without Western notions of representations of political space. In fact, maps have always been created by Indigenous peoples worldwide but often for quite different aims and in myriad ways. Agreements concerning shared space, and representations of kinship relations for example, is one way that First Nations in British Columbia have traditionally used cartography (Thom 2009), while the Tohono O’odham in southern Arizona and northern Mexico used songs and calendar sticks (Figure 1) to supplement oral tradition and created a mapping system that memorialized landscapes in a complex cognitive fashion that didn’t require paper or computers (Darling and Lewis 2007).



Figure 1: Tohono O'odham Calendar Stick

(Photo courtesy of the Arizona State Museum, University of Arizona, Helga Teiwes, Photographer)

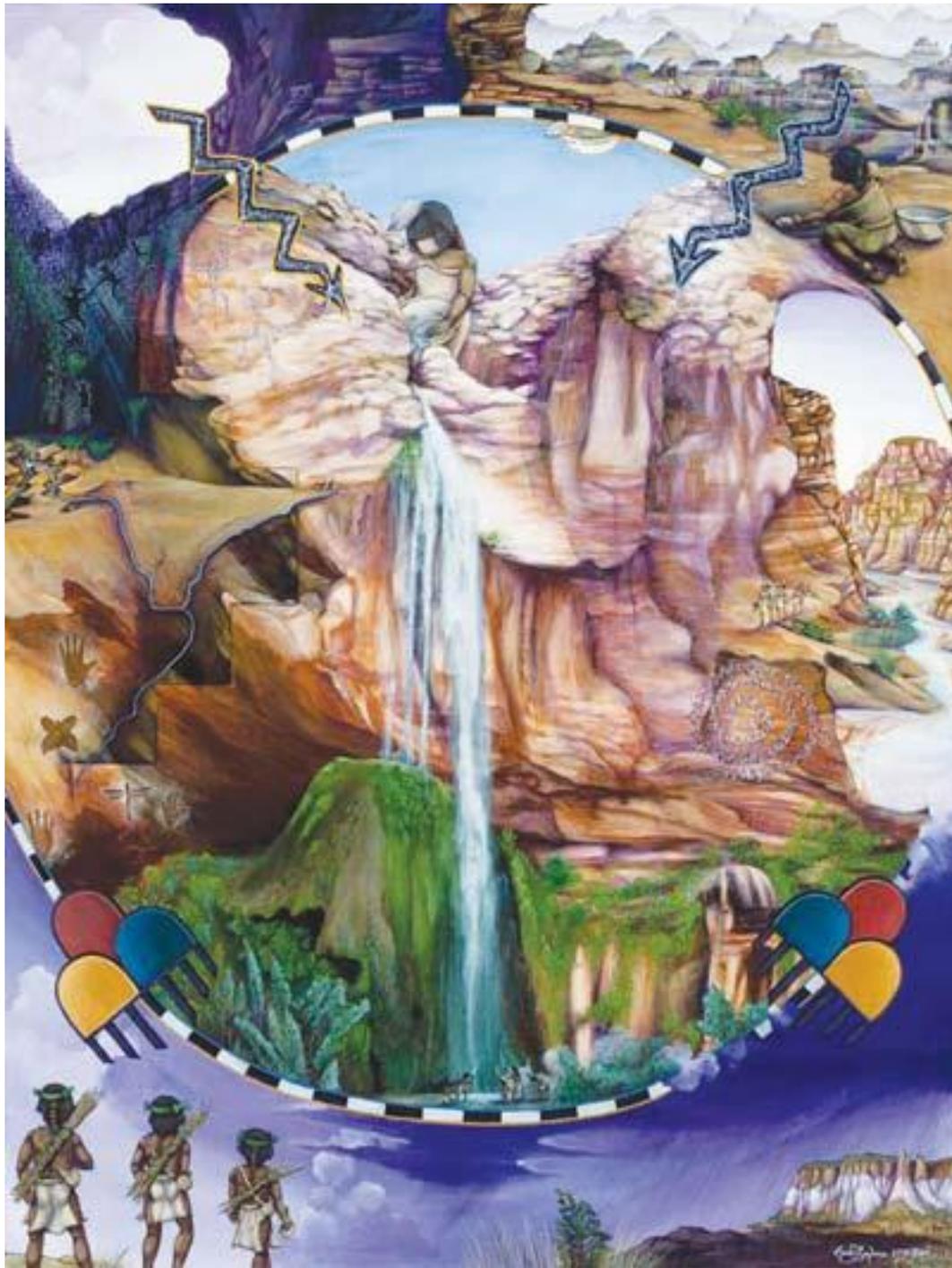


Figure 2: "Chimik'yana'kya dey'a (Ribbon Falls) by Geddy Epaloose, 2010.

From the Museum of Northern Arizona 2011 exhibit: A:shiwi A:wan Ulohnanne: The Zuni World. (Enote and McLerran 2011)

In the Zuni Pueblo tradition, Zuni artists have created visual representations of oral traditions about their storied landscapes (Figure 2) that at once encapsulates creation stories, migrations of people across the land, and places of cultural significance in a single work (Enote and McLerran 2011). Australian Aborigines undertook a massive project in 1997 whereby 30 traditional landowners created an immense canvas over 32 feet across (Figure 3) detailing their traditional landscapes and their relationships with the



Figure 3: The Ngunnara Canvas at the Ngunnara Native Title Determination proceedings at Pirnini, November 2007.

(Photo: Ngunnara Artists Group. National Museum Australia 2014)

land for a dramatic court case verifying their claims to over 76,000 km² of land in the Kimberly region:

As Aboriginal lawyer and writer Larissa Behrendt pointed out, the Ngurrara Canvas confronted the colonial history of property and presented a carefully preserved Aboriginal law on spatial relationships: The dominant legal culture has an emphasis on the written word, on economic rights and is focused on the individual. By stark contrast, Aboriginal law has an emphasis on oral transmission, the preservation and maintenance of culture and is communally owned. The Ngurrara canvas, by bringing an embodiment of Aboriginal law into the court for consideration by the dominant culture, communicated across the divide. (Hershey, McCormack and Newell 2014: 2-3).

Perhaps it is worthwhile to note that unlike today's modern computerized cartography, mapping is an ancient practice—one that is perhaps as old as humans themselves. And in North America, places such as Map Rock (Figure 4), an ancient petroglyph rock in the Owyhee Mountains of Idaho demonstrate not only the importance of mapping to ancient people, but the detail present in their maps as well. Situated along the Snake River, Map Rock's landscape details are so precise that they present a navigable map even today. In a letter to John Wesley Powell in 1897, geologist E. T. Perkins, Jr. noted that his interpretation of Map Rock (Figure 5) was that:

The principal motif seems to be a mapping of the Snake River Valley. The most conspicuous line being the course of the Snake River, and is readily recognizable



Figure 4: Map Rock in the Owyhee Mountains of Idaho

(Photo by Carolynne Merrell, *La Pintura* 2013: 9)

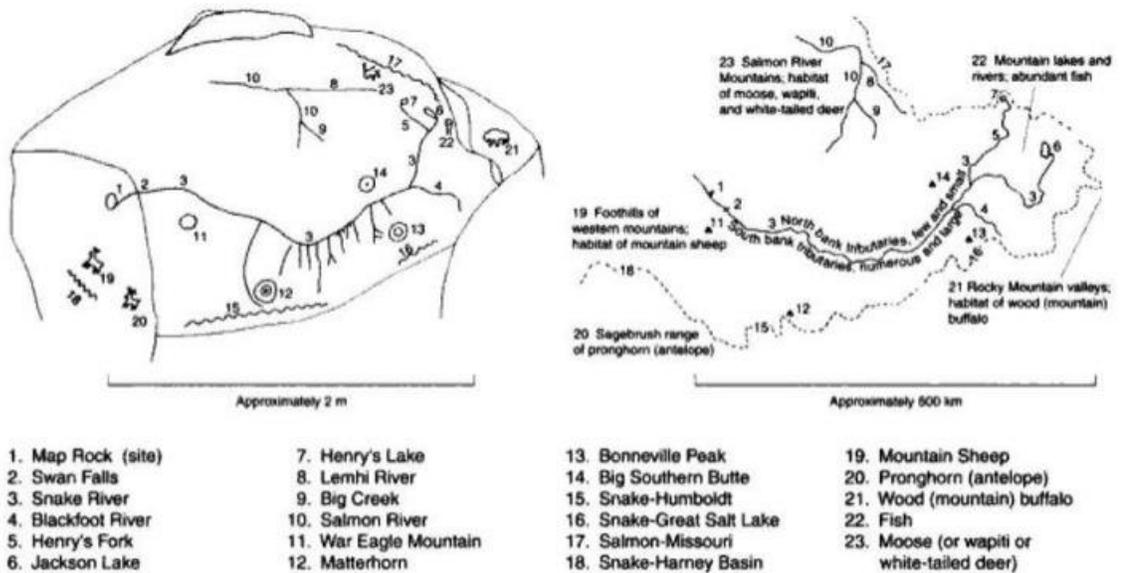


Figure 5: Drawing of Map Rock and interpretation of points of significance

(Courtesy of the Smithsonian Institution)

and quite accurate, compared to the Land Office and other maps... One branch rises from a spring, and the other flow from a large lake, the Henry Lake of our maps... At the third turn of the stream [Snake River] is a branch from the east... which is probably intended for the Black Foot River... The locations of the various groups of circles to the south of the river correspond quite closely to the locations of the ranges of hills which do lie to the south of Snake River. (Perkins 1897)

Map Rock is listed on the National Register of Historic Places and despite over a century of neglect and erosion caused by vehicle traffic has now been acquired by Idaho's Canyon County Parks Department. Idaho state archaeologists and the Shoshone-Bannock people whose ancestors created this ancient map now plan to work together for restoration, interpretation and public education of this important landmark that seems to transcend cultural boundaries (Merrell 2013:9).

As a work that crosses formal disciplinary lines and seeks to bring understanding between disparate viewpoints, this dissertation should not be viewed as an isolate work, disengaged from a larger academic dialogue, but rather as a continuation of the discussion of a larger set of issues that persist in Indigenous communities today. These issues revolve around the irony that so much of Indigenous identity comes from the land, yet millions of acres of ancestral Indigenous land is controlled by federal land managers whose authority comes from an Anglo-colonial legal framework. This problem and its issues are not unlike the impossible puzzle known historically as the "Seven Bridges of Königsberg." This problem, as first proposed in 16th century Prussia (Figure 6), was to find a way to walk through the city of Königsberg that would cross each of seven bridges

once and only once. The islands could not be reached by any route other than the bridges, and every bridge must have been crossed completely every time. The famous mathematician Leonhard Euler declared that although there was no solution to this



Figure 6: Leonhard Euler's "Seven Bridges of Königsberg"

(Handcolored copper engraving by Braun & Hogenberg, Cologne 1585. Royal Institute of Technology, Stockholm)

impossible puzzle, the way to approach the problem would not lie via the pathway, nor by the order in which the bridges were crossed. He presented his findings in *Solutio problematis ad geometriam situs pertinentis* (The solution of a problem relating to the geometry of position) in the journal *Commentarii academiae scientiarum Petropolitanae* in 1741 (Dartmouth College n.d.). The method lay, he theorized, in analyzing the problem based on edges and nodes, or perhaps better understood for the purposes of this dissertation work as blurry boundaries and intersections. Despite such paradigmatic

differences between Western and Indigenous approaches to management of land, there are many places where these intersections and blurry boundaries enable us to work in the margins to iron out practical solutions to what had previously taken the form of intractable positionality. Ironically, Euler's Königsberg puzzle proposal forms the background of today's algebraic and network graph theory which is the theoretical structure employed in the modern Western discipline of computer cartography, geospatial analysis, and geographic problem-solving.

Mapmaking, Anglo property law and colonial practices of the past worked to achieve hegemony in North America through the making of political and cultural boundaries from the late-15th century to the present. Today, this dissertation will examine ways in which Indigenous cartography can work to dismantle these same colonial boundaries. This dissertation will ultimately focus on U. S. Native American concerns but will examine the First Nations British Columbian legal-cartographic strategy as it has been built in response to Canadian land-use concerns and seek to define principles that can be successfully implemented by U. S. Native American communities who wish to develop capacity for geospatial technology. However, before these approaches can be analyzed or recommendations can be proposed, it is first necessary to understand the deep-rooted systems of each paradigm and to define where those blurry boundaries and intersections may lie. For it is by working within the margins and intersections that solutions can be identified, distilled, and frameworks can be articulated which could form the foundation for an emerging Indigenous cartographic discipline in the United States.

ENSOULED GEOGRAPHIES: NATIVE PLACE-BASED THEORY

The choice of a theoretical approach for this dissertation project was informed by theoretical perspectives learned from my earlier work as an anthropologist and evolved during my Master's Thesis research for *Re-Imagining the Landscape: Persistent Ideologies and Indelible Marks Upon the Land* (Stuart-Richard 2012) and my extensive graduate research on the connections between ancestral landscapes and identity. This approach, commonly known as "Native Place-Based Theory," emerged from Indigenous traditional knowledge combined with the work of early cultural geographers and anthropologists, matured in the work of modern anthropologists Basso (1996) and Ingold (2000) and has been validated by many Native scholars and academics (Cajete, Deloria, and Momaday). This theory ties identity to ancestral places and demands a deep understanding of the definitions of and connections between landscapes and identities.

In the early part of the 20th century, Carl Sauer, a Berkeley cultural geographer, began to lay out a definition for what a landscape is and is not. Long considered his seminal work, "The Morphology of Landscape," Sauer defines landscape as something that is necessarily situated firmly in geography (Leighly 1963:6). Sauer struggled with the term and what it implied. "The term 'landscape' was proposed to denote the unit concept of geography, to characterize the peculiarly geographic association of facts. Equivalent terms in a sense are 'area' and 'region'" (Sauer 1963: 321). But in the same work, Sauer endeavored to make a distinction between the physical properties of the land and the temporal properties of the human history upon it (Sauer 1963: 321).

Although Sauer worked closely with cultural anthropologist Alfred Kroeber and his students, Sauer's views on the land diverged from Kroeber's. Nevertheless, Sauer still

gave credit to Kroeber and German geographers of the day for the development of a theoretical construct that distinguished the physical from the cultural landscape, a distinction that remains important in the academy today. Sauer argued that German theoreticians' contention that the land's "shape, in which the process of shaping is by no means thought of as simply physical" (Sauer 1963: 321) is important to defining what a landscape may be. "It may be defined, therefore, as an area made up of a distinct association of forms, both physical and cultural" (Sauer 1963:321). Sauer further described landscape as not so much a thing *per-se*, but more of a process, one with a distinctly "organic quality" (Sauer 1963:322). Kroeber, however, believed the term "organic" was the exclusive opposite of "culture" (Kroeber 1917: 163).

Additionally, Sauer stated that it is difficult to conceptualize landscapes without a human element simply because the geographic *reality*, as Sauer saw it, is that landscapes are formed by human interaction with the land itself and it is this culturally embedded interaction that gives meaning to the land (Sauer 1963: 325). Sauer quoted Oswald Spengler's (1920: 28) ideas about the culture-landscape connection as one where cultures "grow with original vigor out of the lap of a maternal natural landscape, to which each is bound in the whole course of its existence" (Sauer 1963: 325). Although Sauer's and Spengler's ideas were novel for their day, contemporary definitions of landscape generally incorporate this culture-landscape theory *prima facie*—as self-evident. These definitions are so ingrained today that few reference them anymore; and attributions to Sauer's and Spengler's theories are given only vague reference if at all.

Two Sides of the Same Page

Nearly seventy years after Sauer sought to define landscape as a concept strongly linked to culture, anthropologist Tim Ingold echoed a similar thought when he defined landscape as “a part of us, just as we are a part of it” (Ingold 1993: 154). Ingold referenced the linguistic theories of Ferdinand de Saussure as being similar to any proposed definition of the landscape. De Saussure theorized that language and mental concepts correspond to an example of words written on both sides of a single page. One cannot cut apart the words on one side without also cutting the words on the other (Ingold 1993: 155). Ingold theorized that landscape and culture operate in much the same fashion with space imbued with cultural meanings with the world being “as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them” (Ingold 1993: 156).

However, as similar as this definition may seem to Sauer’s landscape, there is a subtle difference. Sauer defined the physical landscape as one thing that, geographically speaking, limits a culture: “We are interested in that part of the areal scene that concerns us as human beings because we are part of it, live with it, are limited by it, and modify it” (Sauer 1963: 325). But in contrast to Sauer’s vision of the culture-landscape connection as essentially a one-way relationship with humans altering the land, Ingold echoed de Saussure as he portrayed the landscape as the embodiment of culture and with culture altering the land just as land alters culture—inseparable concepts and components of a single thing or a relationship, two sides of the same page with each side affecting the other.

A Native Epistemological Model

As interesting and similar as these two concepts of the culture-landscape connection may be, it is worth noting that both are formulated from a Western or Anglo-European worldview; one that is incongruous with many Native worldviews. For the purposes of landscape studies in North America, particularly when referring to Indigenous cultures, it is critical to include in our definitions and theories Native concepts of the culture-landscape relationship. In “Mountain Form, Village Form: Unity in the Pueblo World,” Rina Swentzell (1993) of Santa Clara Pueblo contextualized the definition of landscape through a pueblo worldview. In writing about her beliefs on how culture influences the landscape, Swentzell reflects on her own Santa Claran traditions of the land: “we remain a part of any place we visit—any place where we breathe or leave our sweat. That is why we must think and move carefully wherever we go, because we become one with the place and, therefore, influence its spiritual quality” (Swentzell 1993: 144). Thus, social thought and action influence both the cultural and the physical landscape and their inter-relationship. This adds a third dimension.

Although this view is somewhat similar to both Sauer’s culture-landscape structure and Ingold’s cultural embodiment of landscape, Saussure’s “both sides of the same page” metaphor is perhaps even better illustrated through Swentzell’s pueblo landscape worldview. “Intimacy with the human and natural contexts is essential to operate in the multiple levels of reality. Intimacy with the land, with the earth, is especially crucial . . . That intimate connection and relationship with [the land as] our mother pervades all thought and action” (Swentzell 1993: 144-145). Swentzell, like Sauer, explains that these connections retain a deeply organic quality because of the

human cultural component within the landscape (Swentzell 1993: 142) and that the pueblo beliefs of this culture-landscape connection are at the heart of pueblo life, and pueblo people literally feed this connection. “As [our ancestors] took from the land,” Swentzell (1993: 146) explains, “they were obligated to give something back in return . . . thoughts of thankfulness or a sprinkle of cornmeal, symbolic of nourishment and recognition” thus recognizing the land as a living entity capable of interaction.

Although it is difficult to define exactly what a culture-social-landscape connection or a landscape-identity connection may mean in a way that encompasses every society in every instance, there is ample evidence to suggest that such a connection does exist although it is recognized in different ways by different cultural epistemologies and philosophies and is activated by different cultural traditions and activities. One thing seems to remain consistent from either a Western or Native American worldview: the natural characteristics of a landscape can and do influence our cultural beliefs, traditions, and religions. Similarly, as humans move across landscapes over time with their wealth of technological potentials—to include any memorialization of these landscapes, the imprints left behind are indelible marks upon the land even if they might appear invisible to an untrained eye. Perhaps Sauer epitomized this concept succinctly when he said that “one has not fully understood the nature of an area until one ‘has learned to see it as an organic unit, to comprehend land and life in terms of each other’” (Sauer 1963: 322). From this perspective, a person, society or any social unit has a sense of place, an identity.

Scholars working within the anthropological tradition have been intrigued for more than a century about the connections that Native people have to ancestral places in

the American West. Keith H. Basso explored this topic for more than a half century and in his watershed book, *Wisdom Sits in Places*, he asked the question “What do people make of places?” (1996: xiii). As Basso examined the concept of place from a Native (specifically a Western Apache) viewpoint, he realized that this concept of place has much more depth and importance than when imagined in the usual Anglo-American context. Whereas Western concepts of place predominantly involve a Global Positioning System (GPS) coordinate on a Cartesian grid, Basso noted that place for the Western Apache is quite different. “Apache constructions of place reach deeply into other cultural spheres, including conceptions of wisdom, notions of morality, politeness and tact in forms of spoken discourse, and certain conventional ways of imagining and interpreting the Apache tribal past” (Basso 1996: xv). Place pervades all aspects of life for the Western Apache including language, art, music and philosophical thought.

Basso noted that some places in the Western Apache landscape have become significant because of the history and stories that have become connected to a specific site, area or locale. Once lands become storied landscapes, infused with cultural meaning, Native people invested themselves into that landscape and it becomes prominent within a group’s cultural continuity. It is a complicated blend of culture and land wherein, as Basso (1996: xiii) states, “groups of men and women have invested themselves (their thoughts, their values, their collective sensibilities) [into the land] to which they feel they belong.”

In his approach which he initially called Spiritual Ecology, and later Theology of Place, Greg Cajete (1993a) examined a proposed generalized Native place theory as experienced by his own Santa Claran tradition. Cajete privileges one area of culture—

religion—in his model and holds that it is the main mechanism for Puebloan culture-social-land interactions, similar in importance to Basso's principles derived from the Western Apache. Reverently calling the ancient and sacred landscapes which Santa Clarans have called home since ancient times an "Ensouled Geography," Cajete (1993a: 50) theorized that the relationship that Native people have with the landscapes of their heritage is one that "embodies a theology of place which reflects the very essence of what may be called spiritual ecology." Cajete argued that this land-theology connection has much more depth and involvement than just the physical landscape itself because the land was formed by the people, and the people and their identities were formed by the land. At the heart of Native American identity are the landscapes that are deeply connected to how Native people perceive themselves and their realities (Cajete 1993a: 50).

Cajete expanded this theory by employing an old saying used by pueblo people that translates to "that place that the People talk about" (1993a: 51), a concept very similar to the Western Apache concept and practice of naming as described by Basso. By orienting themselves to a physical place in the landscape, pueblo people are actually orienting themselves to something much greater—sacred orientation and a place of consciousness called sacred ecology (Cajete 1993a: 51). This sacred orientation to the land affects all aspects of pueblo life from religion to language to identity. Cajete argued that this is made possible by the fact that Native people have had a long and continuous relationship to the land that could span as long as 30,000 years or more, that is, from time immemorial.

Landscapes as the Embodiment of Culture

Recognizing the extreme time depth of Indigenous peoples' tenure on ancestral lands is crucial to understanding not only why preserving traditional land use concepts is important, but is especially critical to understanding why continued access to these lands is essential for identity construction and continuity. Part of this identity construction, according to Ingold (2011) lies not only in an association with ancestral landscapes, but in an ancient and enduring association with what he terms an "environmentally situated experience" (138). If we go back to the concepts put forth by Sauer and de Saussure, we can better understand how culture and landscape become intertwined as agents that are mutually influential. Ingold speaks of this connection as one of embodiment and embeddedness (2011) whereby "for Indigenous people themselves . . . it is in their relationship with the land, in the very business of dwelling, that their history unfolds [with] both the land and the living beings who inhabit it . . . caught up in the same, ongoing historical process" (139).

To delve a little deeper into this concept, Ingold also relates Indigenous peoples' extreme time-depth upon a landscape as becoming an essential, referential one. Unlike relative newcomers and their experiences with place, ancestral landscapes upon which cultures develop over long expanses of time become something much different when based on cultural memories:

If culture is taken to consist of a body of acquired information that is available for transmission independently of the contexts of its application in the world, then memory must be something like an inner cabinet of the mind, in which this information is stored and preserved from the vagaries of everyday life. Whatever

people do, or wherever they go, they carry the contents of memory with them. It is an encyclopaedic resource on which they can continually draw for guidance on how to proceed in a manner appropriate to the circumstances in which they find themselves. (Ingold 2011: 138)

In the case of shared cultural memories such as creation stories, traditional ecological knowledge, or medicinal practices, these are generated from and informed by a long land tenure on a particular storied landscape with the focus placed on the events that played out over time on this landscape, not the final landscape form. As Ingold (2011) points out, this Indigenous practice of “temporalising the landscape” (198) is distinctly different from the Western tradition where the form something ultimately takes is usually privileged over the process used to create it (Ibid.). In the Western tradition, it is not the steps involved in the creation of an artistic painting, but rather the final result of the painting that is the object of appreciation (Ibid.). Although the audience is aware that there was a process involved, not much thought is usually given to *the process* by which it was created. In this example, the focus is on *what* was created—the final product. In many Native North American cultures, however, this order is often reversed. In the case of certain Navajo curative ceremonials involving sand painting, it is through the process of creating the lines, the prayers that are spoken and the songs that are sung that the goal is fully realized. Once the ceremony is complete, the sand painting is wiped away. Again, it is the process that holds the value. Likewise, in the case of the Western Apache, Basso (1996) argued that:

For Indian men and women, the past lies embedded in features of the earth—in canyons and lakes, mountains and arroyos, rocks and vacant fields—which

together endow their lands with multiple forms of significance that reach into their lives and shape the ways they think. Knowledge of places is therefore closely linked to knowledge of the self, to grasping one's position in the larger scheme of things, including one's own community, and to securing a confident sense of who one is as a person (34).

Ingold points out that one cannot “treat [a] landscape as an object if it is to be understood. It is a living process; it makes men; it is made by them” (2011: 198). In terms of cognitive processing steps in this land-culture connection, Ingold gives us yet another example. “If we recognise a man's gait in the pattern of his footprints, it is not because the gait preceded the footprints and was ‘inscribed’ in them, but because both the gait and the prints arose within the movement of the man's walking” (Ingold 2011: 199). Likewise it is with culture and landscape—de Saussure's two sides of the same sheet of paper. Culture does not precede landscape, it is expressed within it and altered because of it.

Temporalizing Ancient Landscapes

Just as Swentzell noted these connections between landscape and culture as a special kind of historical intimacy, she also noted the importance of the temporal element which binds it together. Swentzell argues that the passage of time on an ancestral landscape can be noted in the ways in which the ancient villages at Santa Clara Pueblo have slowly disappeared back into the hillsides (1993: 142) but also remarks that it is this feeling of continuity on the landscape over time which brings her fulfillment. “It is very comforting to know that my body will also return to the earth and that my breath will continue into the cosmic breath of life—my specific self not remembering this specific

lifetime” (Ibid.) but instead will transform to rejoin the landscape in other forms. The importance, Swentzell (1993) argues, is held not in specific beings, places, or types of existence, but rather the importance of the elements to a greater whole (142). “The myths, stories, and songs describe a world in which a house or structure is not an object, as such, but part of a cosmological worldview that recognizes multiplicity, simultaneity, inclusiveness, and interconnectedness” (Swentzell 1993: 144).

Swentzell likewise recalls the ways in which this interconnectedness between landscape and people is held within a framework of temporality and how crucial the element of time is to her Pueblo worldview:

In the Pueblo, walls are alive and participate in contexts and cycles of life and death. They are never vagrant. As a child, I was once worried about the cracks forming in the wall of a house at Santa Clara Pueblo. For days I watched the cracks widening. Finally I asked Gia Khuun [great-grandmother] why the people living in the house were not fixing the wall. She explained that the house had endured for a long time as a good house, and that it was time for it to die. It needed a rest before it was built up again. As predicted, the house fell down and the mud from which it was made was remixed with water and used to raise up other walls in its place. In this way, the earth strengthened the village. (Swentzell 1993: 147)

Just as prevalent as differences between Anglo and Native perceptions of landscape seem to be, the notion of time and how it unfolds on a landscape are also difficult to reconcile. Noted Native American scholar Vine Deloria, Jr. (Standing-Rock Sioux) argued that Native American and Western approaches to both time and landscapes

are not so much influenced by “cultural” or “ancestral” differences but rather are more properly placed in what he calls “political persuasions” and a “division of domestic ideologies” (2003: 61). Deloria explained that in a Western thought process, time unfolds in a linear fashion—always marching forward from a given point where Western society began to dominate a particular geographic area and forced the landscapes around it into an evolutionary process that marches ever forward (2003: 62-64). Contrasted with this, Deloria argued, is a Native American view of time whereby time is not necessarily linear but may also be circular, or otherwise. Swentzell demonstrates her ideas of circular time as the renewal process of people and landscapes. Likewise, Deloria, Cajete and others have pointed to the ceremonial cycle as being an example of cyclical time. Within each example is the conceptualization of ceremony as a renewal of time, people, and landscapes.

Landscapes of Identity

Just as early geographers such as Sauer, many contemporary anthropologists and popular authors argue that a deeper connection to the land is theorized to exist, especially among some Native groups. However, few Western authors have sought to expound on the concept beyond a vague land-identity suggestion. However, Basso did comment on this and stated that in order to form and maintain identity, Native people must be intimately connected with the landscapes of their heritage:

As Vine Deloria, Jr. (Standing Rock Sioux), has observed, most American Indian tribes embrace “spatial conceptions of history” in which places and their names—and all that these may symbolize—are accorded central importance. For Indian

men and women, the past lies embedded in features of the earth—in canyons and lakes, mountains and arroyos, rocks and vacant fields—which together endow their lands with multiple forms of significance that reach into their lives and shape the ways they think. Knowledge of places is therefore closely linked to knowledge of the self, to grasping one's position in the larger scheme of things, including one's own community, and to securing a confident sense of who one is as a person. With characteristic eloquence, N. Scott Momaday (Kiowa) suggests that this has been so for a very long time. [Basso 1996: 34]

Basso continued using Momaday's own words:

From the time the Indian first set foot upon this continent, he centered his life in the natural world. He is deeply invested in the earth, committed to it both in his consciousness and in his instinct. The sense of place is paramount. Only in reference to the earth can he persist in his identity. [Momaday (1994), in Basso 1996: 35]

Clearly, Native identity comes from the land, and both Momaday and Deloria argued that a close connection to the lands of Native heritage is imperative for maintaining a distinct Native identity.

COLONIAL RELICS AND NEW PARADIGMS

Safeguarding access to ancestral heritage lands is crucial to the continuation of Indigenous and Native identity. Preservation of these landscapes is foundational to understanding the significance and urgency of Indigenous cartography today. Although different in many ways from traditional Western cartographic praxis, Indigenous cartography works to preserve the connections between Indigenous peoples and these landscapes. Anthropologist Brian Thom of the University of Victoria in British Columbia argues that cognitive constructs in the Indigenous mapping process are underwritten by a “relational epistemology” that affects the ways in which boundaries are, or perhaps are not constructed (Thom 2009: 179).

Indigenous cartography works within a system where “place” and “ways of knowing” are intimately tied to notions of kinship, neighboring tribes’ shared space and traditional ecological knowledge acquired over the millennia (Wickens Pearce and Pualani Louis 2008). For Indigenous people residing on ancestral landscapes, this cartography more resembles storytelling than map-making because “places do not have locations but histories” (Ingold 2000: 219). These “historied” landscapes can be recounted through modern digital computer cartography, drawn on paper maps, or recorded and transmitted generationally through stories and even songs. Extreme time depth on an ancestral landscape can produce songs rich in history and tradition as it relates to the land as in the case of the trail songs of the Tohono O’odham Nation of Arizona and northern Mexico. “Time is important for understanding how landscapes, particularly sacred landscapes, exist alongside history. If we wish to appreciate the

traditional O’odham’s spatial concepts, then we must consider them in the context of O’odham ideas of time and history” (Darling and Lewis 2007: 131).

Indigenous cartography brings to life a place where mapping and geography cease to be Cartesian coordinates on a Euclidean plan and instead become a place that is both larger and with more time depth than the human experience of the known world. For example, Nimiipuu storied relationships between salmon and creation stories (Colombi 2012: 189) and ideas of kinship and clanship (Thom 2009) can become a part of the fabric on which these cognitive boundaries lie; transcending the sum of the human experience on the land to become a world larger than the sum of its parts. Indigenous cognitive relationships to land are distinctly different from that practiced in the Western world where boundaries are determined by immovable polygons and represent an epistemology deeply rooted in English property law.

Concepts of this “totality of territorial relations of indigenous people” (Thom 2009: 180) can be described as “radical” because they represent a departure from traditional Western ways of mapping and assert Indigenous political, economic, and cultural sovereignty. Margaret Wickens Pearce and Renee Pualani Louis argues that this “radical” Indigenous cartography is an innovative use of mapping which “incorporate[s] Indigenous and non-Indigenous conventions in the same map” (2008: 107) and therefore supports a larger global Indigenous awareness. Thom argues that through the practice of “radical” Indigenous cartography, Western boundaries become so permeable that they cease to be boundaries at all and are instead rooted in the “complex relationships with ancestors and spirits which go to the heart of indigenous experiences of dwelling in place” (2009: 179).

However, in order to be more precise in our understanding of this process of mapping, we must first define some important terms. “Cultural Mapping” is a phrase commonly used by non-specialists to refer to insider knowledge of an Indigenous landscape. According to Terry Tobias, “First Nation peoples carry maps of their homelands in their heads. For most people, these mental images are embroidered with intricate detail and knowledge, based on the community’s oral history and the individual’s direct relationship to the traditional territory and its resources” (2000: 1). Often misunderstood as “cultural mapping,” these maps contain much more than culture, and often reflect a much deeper understanding than what is merely contained on the surface of the land when portrayed simply as points, lines, or polygons on a map. Perhaps for an outsider wishing to record Indigenous movements across the landscape, a more useful term might be “Land Use and Occupancy Mapping” (Tobias 2000).

Mining Cognitive Landscapes

Another term commonly used is “cognitive mapping” to refer to this same dataset of points, lines, and polygons. However, the use of the word “cognitive” implies that there is a deeper meaning to these maps—one that is rooted in cognitive psychology and seeks to capture a sense of how Indigenous people conceptualize this embodiment of space and their place within that landscape. Although it is true that an inhabitant of a landscape would conceptualize it differently than a stranger, the word “cognitive” seems to be a way for outsiders to look for a shortcut to understanding the complexities of a mental map that only deep time-depth and extended experience on a particular landscape can reveal. Although an outsider can see the objects, features and locations present on a

landscape or map, only an insider can understand the relationships between them (Ingold 2000: 220). It is therefore important that one define what level of understanding is being sought from these maps in the beginning in order to apply the most correct terminology. If all one seeks is to understand how the land is being used, then the appropriate term is “land use and occupancy mapping.” If however, one is seeking a deeper understanding of the relationship of the people to the land, it becomes a process that requires an understanding of oral tradition, songs, histories, and a multivocal, multigenerational approach which may not be available to or appropriate for outsiders. For the sake of clarity and unless a particular agenda is stated, perhaps the more general term “ethnographic mapping” or “ethnocartography” is more appropriate in some instances.

Although Indigenous people have always practiced a relationship to land and have a well-developed relational epistemology to ancestral and origin landscapes, the practice of modern ethnographic mapping has only become known in North America since the 1960s (Chapin *et al.* 2005: 620). Even more recent is the practice of computer assisted mapping, coinciding with the rise in digital cartography largely through the development and use of Geographic Information Systems and Science (GIS and GISc). However, the relationship between Western map makers and Indigenous peoples spans hundreds of years and encompasses explorers and bureaucrats as well as Indigenous people (Palmer 2012: 76). “Usually, the maps did not acknowledge indigenous people as the source of the geographic information used to create maps” (Palmer 2012: 76). But because the purposes of these early maps were largely economic, extractive, and bureaucratic, these maps served the interests of colonial empires and were used as instruments of

assimilation against Indigenous peoples (Palmer 2012, Lewis 1998) with the practice of mapping becoming a distinctly political act (Peluso 1995: 383).

Toward an Emerging Indigenous Cartography

The act of map making, whether using paper maps or sophisticated computer map datasets, has largely been that of a top-down endeavor. As part of a larger bureaucratic and political process, the technology available and the reasons for producing these maps, have largely come from a U. S. federal imperative that has spread down to become a Native American endeavor. “Most American Indian tribal governments located in the lower forty-eight states adopted GIS through top-down federal government processes” (Palmer 2012: 77). Tribes have found it necessary to utilize the GIS format for mapping in order to interact with the federal processes of land and resource administration. Although many U. S. tribes now use GIS for purposes of managing natural and extractive resources (Bailey, Beck, Frohn *et al.* 2001, Bailey, Frohn, Beck *et al.* 2001, Seagle and Bagwell 2001, Taylor, Gadsden, Kerski *et al.* 2012, Weber and Dunno 2001, and Williamson and Goes In Center 2001), ironically, in real-world practice, mapping of cultural resources and sacred sites is largely left to those outside the tribe as tribal or government contractors. Citing this “digital divide” between tribes and the lack of infrastructure necessary to fully implement GIS technology and train users in a tribal setting, some researchers believe that tribal stakeholders will continue to be technologically disadvantaged and at risk for further governmental assimilation unless they effect a bottom-up approach to tribal mapping and sovereignty (Bailey, Beck, Frohn *et al.* 2001, Brown and Nicholas 2012).

As an intensely political act, mapping is an important tool that tribes can use to assert sovereignty in a bottom-up approach to land claims, as well as other legal claims. However, the participation of tribes in this process is crucial and far more effective than if the mapping process is directed by or overseen by outsiders. “The mapping process is thus of utmost importance for indigenous leaders, theorists, development practitioners and others who share a commitment to indigenous rights, but who also assume a critical perspective on the possibilities and pitfalls of map-making in and for indigenous communities” (Sletto 2009a: 147). Sletto argues that as powerful information resources, maps carry considerable weight when an Indigenous relational epistemology is the source of these maps. Maps have always represented power and map-making has been called the “science of princes.” But it is critical to understand that maps are only a two-dimensional representation of a three (or four) dimensional reality. Maps carry an expression of authenticity but are frequently manipulated for purposes of suppression of information or even propaganda (Monmonier 1996). Therefore, “rather than a neutral application of value-free technologies, map-making is entangled in the webs of power that shape indigenous landscapes, informed by contentious productions of indigenous identities, implicated in the socially contingent nature of knowledge systems, and shaped by the positionality of the (most typically western) scientists who direct indigenous mapping projects” (Sletto 2009a: 148). If tribes wish to successfully utilize GIS technologies as legal strategies, then they must develop the infrastructure necessary and train GIS specialists from within whose positions can then be isolated from the tribal political process for the benefit of the tribal nation.

Dismantling Colonial Frameworks Through Strategic Implementation

Opportunities for the application of GIS technologies as a legal strategy for tribes are timely and extremely relevant in today's political landscape. Whether in land claims cases, assertions and reassertions of treaty rights, promotion of access to sacred sites, management of cultural resources, the federal recognition process, or in Native American Graves Protection and Repatriation Act claims – for instance, mapping can be the crucial piece of evidence in a tribal strategy. “In such cartographic contests between various state and indigenous representations of space, boundary-making assumes a particularly significant role as an arbiter of relations of power” (Sletto: 2009b: 254). This boundary-making, Sletto argues, takes place as Indigenous peoples shift the narrative from an exclusively Western colonial framework to an Indigenous relational understanding of the land. Just as colonialism worked to achieve “hegemony” through the making of political and cultural boundaries, “ethnocartography” can work to dismantle these same colonial boundaries (Sletto 2009b).

Although the applications for GIS technology within a tribal setting may appear endless, there are several significant applications which Indigenous peoples either are considering or should be considering in the future. Perhaps the most obvious legal strategy for GIS is when it is applied to treaty rights and land claims and environmental issues. Gathering generational information about tribal land use is an important piece of this process in order to prove a deep and long-standing use of and connection to ancestral lands. In British Columbia among First Nations people, the use of GIS to assert these ancestral connections as well as preserve them in tribal histories is commonplace:

With the continuing exploitation of the many resources of our territories come relentless, ongoing attempts to negotiate by government and/or industry. When those attempts fail, it often leads to litigation whereby we bear the burden in court to demonstrate the harmful impacts to our territory, our culture and to our communities. Land use-and-occupancy mapping is a method that allows us to catalogue, safeguard and convey the collective knowledge of our communities. It is this collective knowledge that compels us to defend our Aboriginal Title and Rights through negotiation, litigation and at times, confrontation on the land itself. (Grand Chief Stewart Phillip, President of the Union of British Columbia Indian Chiefs, Tobias 2009: 7)

But what happens when tribes don't have the technological capacity to control the use of GIS data that already exists? In one case, the U. S. Bureau of Indian Affairs used GIS to administer allotted lands in its construction of a nationwide database called the Integrated Resource Information Program. Because tribes either did not develop capacity to use this information or developed it too slowly, this administrative database went mostly unused by tribes allowing the BIA to control funding, natural resources, and management on tribal lands (Palmer 2012). But when tribes later tried to build capacity to use this data, their efforts were blocked. "The BIA controlled the GIS applications and vast storage of data on the Colville Confederated, Warm Springs, and Flathead reservations. All three tribal governments made requests to control their own applications and data, but the BIA denied their requests" (Palmer 2012: 78). In other cases, tribes such as the Zuni have successfully used GIS to create an overlay map which was used in their successful land claims case in the U.S. Claims Court (*Zuni Tribe v. United States*) as

well as its federal district case in Arizona (*United States v. Platt*). Instrumental to the tribal production of this GIS map was the Zuni's religious pilgrimage knowledge and histories upon this landscape that extend back before the first Western foot stepped on this land (Hart 2000).

Another application of GIS to a tribal legal strategy can be found in the regulations of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). This federal law requires the repatriation of many Native American human remains, funerary objects, sacred objects and objects of cultural patrimony to federally recognized Native American tribes who have a cultural affiliation to these remains or objects. The key to the implementation of NAGPRA is the assignment of cultural affiliation under NAGPRA's regulations and is defined as "a relationship of shared group identity that may be reasonably traced historically or prehistorically between a present-day Indian tribe . . . and an identifiable earlier group" (NAGPRA 43 C.F.R. 10). Although this definition sounds reasonable, the criteria for making this claim can be problematic. Allowable evidence in order to prove this affiliation is the following: "Geographical, kinship, biological, archeological, anthropological, linguistic, folklore, oral tradition, historical, or other relevant information or expert opinion" (NAGPRA 43 C.F.R. 10).

These expert opinions as well as nearly all of the other allowable evidence usually come from non-Indigenous sources, or from non-Indigenous archaeological viewpoints. From my own decade-long experience as a NAGPRA specialist working for the U.S. Department of Defense, it is common practice for archaeologists to rely on a single cartographic source called the "Indian Lands Areas Judicially Established" (National

Park Service 1978) in order to make this assignment of cultural affiliation. However, this map only contains judicially settled land claim disputes between U. S. Native American federally-recognized tribes and the U. S. Government that were filed between 1946 and 1951. If a tribe did not file a land claims case during that time, they do not appear on this map which could potentially exclude their participation in the repatriation process. Sadly, using this loophole has become standard practice in far too many cases and denies many Native Nations the right to participate in the repatriation of their ancestors and objects integral to the continuation of their identity as Native Americans.

The emergence of a tribal GIS mapping discipline could change all this. Currently, the usual “expert opinions” used in the assignment of cultural affiliation are non-Native. But if more tribes participated in providing their own geographic evidence in the format of an accepted GIS map product that dovetailed with other allowable forms of evidence under NAGPRA (*tribal* kinship, *tribal* archaeological, *tribal* linguistic, *tribal* folklore, *tribal* oral tradition and *tribal* histories) tribes could establish themselves as THE Experts of Opinion and proactively assert evidence of cultural affiliation thereby changing the ways in which NAGPRA is implemented. The application of tribal GIS to the implementation of NAGPRA could result in a repatriation process that is much more satisfying to tribes than the current *status quo*.

Other potential legal-cartographic strategies that incorporate tribal use of ethnographic mapping might be found in the application process for federal recognition, tribal enforcement of fishing and hunting regulations (especially in Public Law 280 states), and in particular in the exercise and reassertion of off-reservation tribal treaty-based hunting and fishing rights. Applying Felix Cohen’s Reserved Rights Doctrine,

treaties among American Indian tribes are not a granting *of* rights from a greater sovereign, they are in fact recognition of certain *inherent* rights that predate colonization (Newton 2012). Indigenous reserved rights have been the linchpin for many important U.S. federal court decisions regarding Native water, hunting, and fishing rights, some of which even survive termination of the federal-tribal relationship (*United States v. Winans*, 1905; *Menominee Tribe of Indians v. United States*, 1968; *United States v. Washington*, 1975). A common phrase often invoked in treaty language is the preservation of rights “at all the usual and accustomed places.” Indigenous cognitive constructs of land rights and permeable boundaries, when applied through a tribal cartographic model could have a significant impact on the field of federal Indian law thus “transform[ing] their social and spatial relations in ways that may transcend the concepts ‘territory’ and ‘property’”(Wainwright and Bryan 2009: 170) as it has in other parts of the globe (Peluso 1995, Pigliasco 2009, Roth 2009, Tobias 2000, Tobias 2009).

In Vancouver, British Columbia, the Tsleil-Waututh Nation asked for and received grant funds to conduct a tribal land-use-and-mapping survey. By engaging over 90 community members in 44 different use-and-occupancy activities, the Tsleil-Waututh produced a digital GIS database which contained over 10,000 individual sites from which they produced over 500 actual map sheets. These tribally produced maps when incorporated with written research containing biophysical and cultural information resulted in the “broadest compendium of information on Tsleil-Waututh territory and culture” ever produced (Tobias 2009). This research was 1) Community Based, 2) Comprehensive, 3) Informed by Experts, 4) Informed by Other First Nations, 5) Methodologically Sound, and 6) Trust-Based (Tobias 2009:18). The significance of the

Tsleil-Waututh project could have lasting impacts for U.S. tribes who choose to use a similar methodology for the rights to access and fully utilize off-reservation treaty-based hunting and fishing lands by showing lasting connections to “all the usual and accustomed places.”

Is Heritage a Human Right?

There are many authors and scholars currently working on and writing about this sort of mapping specific to tribal people in the U.S. and worldwide. Many of my most often-used sources have already been mentioned in the previous pages. However, there are others whose work bears mention here that provided an important early framework for modern landscape theory. Keith Basso’s work among the Western Apache was one of the earliest works that received national attention from anthropologists working with Indigenous people in the United States. By using an Indigenous storytelling technique, Basso reflected on his work with Apache people and the landscapes in which they occupied as mentioned heretofore. But Basso’s approach, instead of using the normative anthropological one, instead sought to understand connections to landscapes through the Apache language and culture. Diane Barthel-Bouchier’s work seeks to extend this concept in order to answer the question, “Is heritage a human right?” (2013) meaning, do people have special rights to landscapes of origin that other people do not? Barthel-Bouchier answers this question by a review of the United Nation’s 1948 Universal Declaration of Human Rights in the post-World War II era, the Convention Concerning the Protection of World Cultural and Natural Heritage adopted by the UNESCO General Conference in 1972, and the UNESCO Convention for the Safeguarding of the Intangible

Cultural Heritage of 2003. However, Barthel-Bouchier's concerns leave the United Nations Declaration on the Rights of Indigenous Peoples conspicuously absent from her discussion. It seems as though Barthel-Bouchier's descriptions of what should be protected pertain mainly to a Western-constructed concept of heritage, namely architecture, art, and tourism, and seem unconcerned with landscapes of cultural heritage which bear little or no connection to capitalism.

Perhaps one of the most often referenced works and a guiding source for the ever-increasing concerns about international Indigenous communities and human rights to land is the United Nations Declaration on the Rights of Indigenous Peoples (2008). This document, signed by the United States, Canada and Australia in 2010, promotes Indigenous rights by virtue of their Indigeneity, not in spite of it. The Articles contained therein reinforce Indigenous rights to self-determinism, freedom and equality and specifically addresses land-based issues such as dispossession (Article 8), rights to cultural sites (Article 12), control of ceremonial objects and repatriation of human remains (Article 12), rights to sacred lands (Articles 24, 25 and 26), redress and restitution for the taking of lands (Article 28), land conservation and environmental protection (Article 29) and cultural heritage and lands (Articles 31 and 32). Although not explicitly mentioned in this document, the rights of Indigenous groups to retain and maintain control of ancestral lands by use of GIS is implicit throughout this document.

Former United Nations Special Rapporteur S. James Anaya, in his report on The Situation of Indigenous Peoples in the United States of America of 2012, discusses the loss of culturally significant landscapes and sacred lands as “inflict[ing] permanent harm on indigenous peoples for whom these places are essential parts of identity” (United

Nations 2012a:12) and notes the importance of the restoration of hunting and fishing rights for Indigenous people. In his Conclusions and Recommendations, Anaya argues that the restoration of “indigenous peoples’ capacities to maintain connections with places and sites of cultural or religious significance” (United Nations 2012a: 20) is considered imperative as are “issues of self-governance, environmental degradation, language restoration, and federal recognition” (United Nations 2012a: 21) and the restoration of treaty rights, water rights, and resource rights (United Nations 2012a: 36). It’s important to add that the development of tribal GIS capacity is essential to ensuring that these calls for connections and restorations to lands, federal recognition, and rights do not fall on deaf ears.

Specters of Scientific Colonialism

Any discussion of tribal GIS must include a precautionary statement because a misuse of GIS technology, whether for “cultural mapping,” “land-use-and-occupancy mapping,” or “ethnographic mapping,” has the potential to be damaging to the very people it is intended to assist. Although a theory and methodology of Indigenous cartographic practice is in use among some First Nations in British Columbia (Tobias 2000, 2009) and has spurred worldwide interest, no “best practices” yet exist for the Indigenous use-and mapping discipline.

Currently, “cultural mapping” as it is called among anthropologists and geographers is a technology that many flock to but that few are theoretically or methodologically trained to use. It is instead in danger of becoming yet another tool used to exploit, commodify, and commercialize Native culture especially through for-profit

information mapping outlets (Wainwright and Bryan 2009, Chapin *et al* 2005, Hillis *et al* 2013). Tribes who wish to undertake mapping projects should first consider the long and short-range objectives and consequences that might result. Tribes should be asking “who should control, have access to, or benefit from cultural heritage, past and present?” (Nicholas, *et al.* 2010: 11). Many tribes understand that any information gathered has the potential to be misused if it should fall into the wrong hands and map-making is no exception. Obviously, sacred site and archaeological site locations should be kept under the tightest restrictions feasible. But other concerns may not be so obvious. “The specter of scientific colonialism emerges when, for example, benefits go primarily to outsiders rather than the community, as in bioprospecting and cultural tourism” (Nicholas *et al.* 2010: 11). Nicholas goes on to point out that once protected cultural information is made public, it is at risk. Outsiders have appropriated and commoditized images of artifacts, sites, rock art and other iconography. The costs to individuals, clans and communities may be very high: loss of control over proper care of heritage, diminished respect for the sacred, the commercialization of cultural distinctiveness, and improper or dangerous uses of special or sacred symbols by the uninitiated (Nicholas *et al.* 2010: 11).

These things might not be of initial concern to a tribal entity seeking to exercise treaty-based fishing rights but could become a part of the high cost of that assertion. Geographer Robin Roth casts an even gloomier forecast for groups who initially set out to use mapping to defend aboriginal territory without an effective strategy for managing the security of the data collected. Roth documents what she calls an “ironic” effect of this protection in the form of “increased conflict, increased privatization of land, loss of indigenous conceptions of space and increased regulation by the state” as well as

“potential epistemic violence associated with counter-mapping and the entanglements of power that can shape mapping projects in unfortunate ways” (2009: 207). Roth warns that this sort of “counter-mapping” tends to place people on the landscape in an historic way rather than one with a fluid, moveable relationship to the land thus “fitting ‘indigenous people into the spatial configurations of modern politics’” (2009: 208).

In another critique of this participatory mapping process, Jason Farman of Washington State University is especially critical of the role of for-profit mapping outlets such as Google Earth. Farman warns that the history of map-making and colonialism should not be ignored in what is seen as the “neutral” technology of Google (2010: 870). While cautioning about the politics and ideologies that control a map’s projection (making some areas seem larger or more important pulling them out of scale with other areas), Farman alerts potential map-makers to the reality that outlets such as Google deliberately apply distortions just as any mapmaker has the power to do (2010). From detailing disputes with Google over national borders to the proper labeling of Taiwan and the mysterious disappearance of Tibet (presumably due to China’s financial influences with Google), Farman makes a good point when he argues that “if Google Earth’s ancestry is colonial cartography and the tools it utilizes (aerial and satellite imagery) are rooted in militaristic uses, what if anything, is the empire mapped by this GIS?” (2010: 876).

Tribal entities may be encouraged to avoid the pitfalls of for-profit mapping outlets such as Google Earth and instead settle on a position of ownership of the information but in lieu of the expense and investment of training tribal GIS personnel, instead contract this work out to anthropologists and other trained professionals as many

have done in the past. At first this seems like a good fit for many groups, but caution must be exercised here as well. Even well-meaning and well-trained anthropologists can assert their own mapping agendas ahead of a tribal agenda when creating these mapping products.

By asserting state-of-the-art visualization techniques focused on the aesthetics of a mapping project of an historic Alaska Native village and the utilization of sub-par ethnographic methods which only tangentially incorporated a Native view (Mack, Mack *et al.* 2011), some mapping projects fall short of accomplishing all that they could have. Yet others focused on natural resource management continually undermine community needs and tribal sovereignty by using the wrong approach to community participatory mapping (St. Martin and Hall-Arber 2008). In a seemingly innocuous study on marine spatial planning, St. Martin and Hall-Arber advocate using a wildlife “home range” mapping methodology to show Native community uses of the land, thus continuing the practice of equating Native people with animals (782) and discouraged interviewees from providing information about their personal fishing locations in favor of participants agreeing to community fishing locations thus relegating what could have been a multi-vocal tribal perspective to one of a consensus when one didn’t exist (782). The interviewees’ documented reluctance to provide this information was a hurdle that insider researchers would not have likely encountered. In fact, one reason that the Tsleil-Waututh mapping project in British Columbia (Tobias 2009) was so successful was that it was based on trust, methodologically sound methods, and because the research was conducted by insider stakeholders, there was tremendous community cooperation. The significance

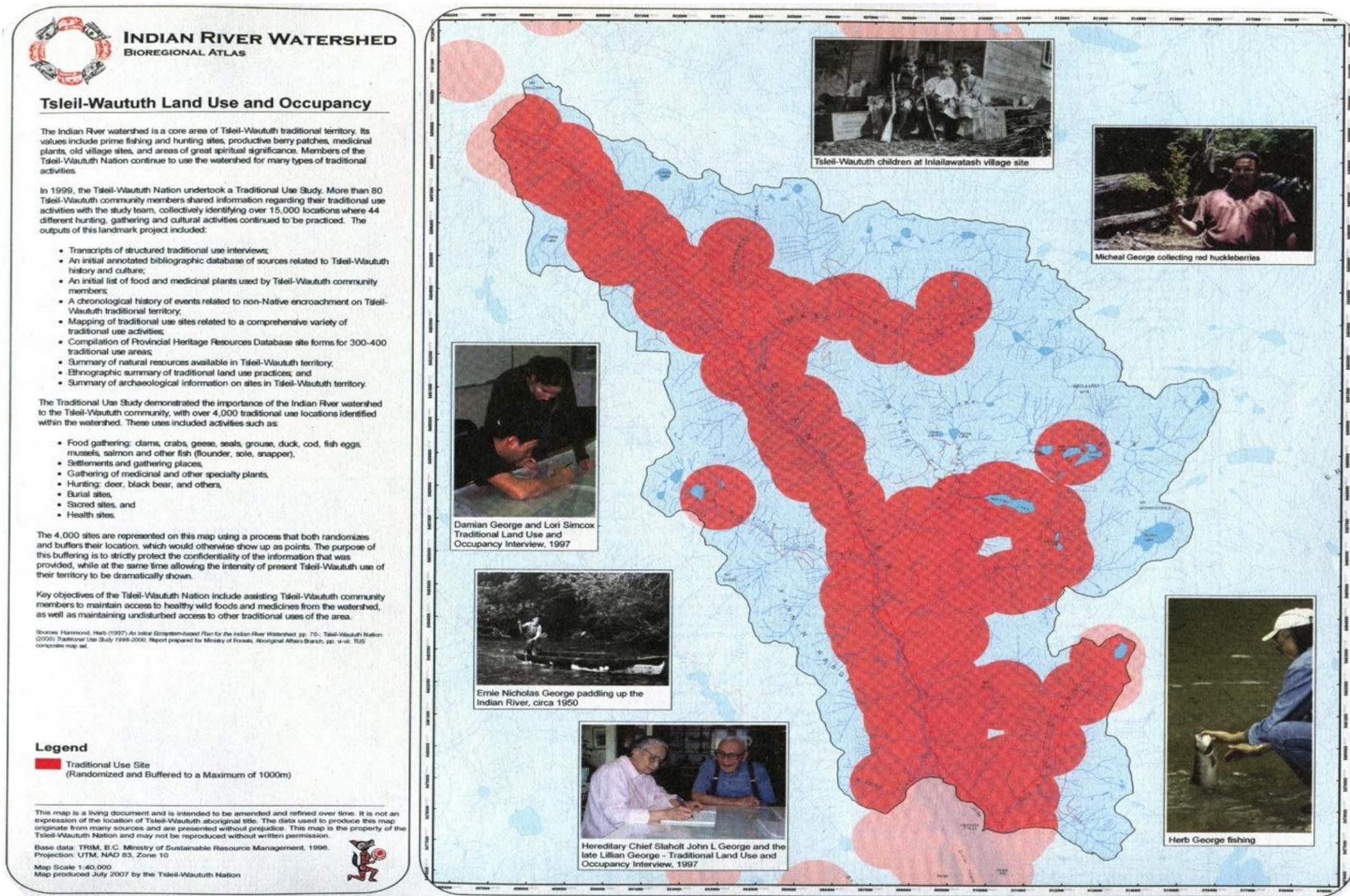


Figure 7: Tsleil-Waututh community participatory map.
(Tobias 2009: 27)

of the Tsleil-Waututh maps (Figure 7) is that each individual in the community provided his or her own unique information that when taken together as a community whole showed an intensive land use over an immense time depth and yielded far more significant results than one based on a small set of reluctant community interviews. The value of an appropriate theoretical and methodological approach to this type of culturally sensitive mapping project cannot be understated.

The challenges to tribal nations wishing to further their landscape sovereignty in the 21st century are many and great. There are many pitfalls that tribes must be made aware of before acting on the promises of a digital geospatial technology such as GIS. However, for those tribes who can successfully navigate these residual traps of colonialism and provide their people with tools that they can use to preserve their traditions, will assert their places on ancestral as well as current landscapes and position themselves to be the caretakers of their own heritages in the future. In today's digital world, we are accustomed to using what might be called "plug and play" technology that requires no previous technical knowledge and can produce what appear to be highly technical and superior cartographic results. However, I cannot stress enough that GIS technology is NOT one of them. The hard work of developing appropriate community-based methodologies before ever touching a computer keyboard is crucial to the overall success of the project. Failure to do so could result in an inappropriate use and release of traditional knowledge that will ultimately harm tribal nations. Because no manual of

“best practices” yet exists for tribal nations wishing to utilize GIS, extreme caution must be used and the use of outside personnel and technicians should be severely limited.

However, tribes can build capacity to use GIS but it has to be done with respect to tribal traditions and customs and with the support of tribal officials in order to produce the best results. Tribal GIS is not a one-size-fits-all solution but when carefully built can be a customized solution to many of the problems which tribal entities encounter when dealing with an essentially colonial framework of land management. I am not alone in my concerns for the use of tribal GIS, in fact, many of the most successful tribal GIS efforts were initiated out of concern for the problems inherent in using geospatial technology to assert Indigeneity:

Land-use data is essential if the rights of usufruct, which have been recognized throughout history and in virtually every legal system, are to be respected and enjoyed. It should not be surprising then that more and more people are attempting to document land use. Yet I am concerned that so many so unprepared are setting out boldly to make land-use maps. There are so few kinds of research which carry with them such tremendous social responsibility and which are so thoroughly difficult to perform effectively. Much can be lost with poorly conceived and poorly executed work. The problem in this case is that the maps, once drawn, tend to last forever. They appear very substantial even when every line on them is wrong or meaningless. When these lines reflect on people's rights and property for generations they clearly should be most carefully and professionally prepared. (Karl E. Francis, Early visionary of the use-and-occupancy map discipline, speaking at the 31st Alaska Science Conference,

American Association for the Advancement of Science, September 1980,
Anchorage. Tobias 2009: 1)

As previously demonstrated in the Tsleil-Waututh case, tribal community mapping can be a very rewarding and legally important endeavor. In fact, I cannot think of any other act which would promote tribal sovereignty, preserve identity, and satisfy the needs of tribal nations more than adopting a tribal GIS program. But it is indeed a complex process, one that tribal leaders must carefully embrace for the 21st century.

POLITICS OF PLACE, POWER AND REPRESENTATION: METHODS FOR
ANALYZING A LEGAL-CARTOGRAPHIC STRATEGY

Representations of Native people throughout history have been bolstered by the rampant stereotypes that underlie the construction of dominant society's identities. In the case of the United States, throughout this dissertation I refer to this as the American Metanarrative. In short, this is the way in which the larger, non-Native population formulates its identities: historic and contemporary. In the United States, American identity relies on Homi Bhabha's concept of fixity—that is, relying on historical stereotypes of American Indians in order to explain American exceptionalism as the natural outcome of American dominance over the savage “other.” According to Bhabha:

An important feature of colonial discourse is its dependence on the concept of ‘fixity’ in the ideological construction of otherness. Fixity, as the sign of cultural/historical/racial difference in the discourse of colonialism, is a paradoxical mode of representation: it connotes rigidity and an unchanging order as well as disorder, degeneracy and daemonic repetition. Likewise the stereotype, which is its major discursive strategy, is a form of knowledge and identification that vacillates between what is always ‘in place’, already known, and something that must be anxiously repeated. (Bhabha 1994: 94-95)

By employing fixity in identity construction in the larger American metanarrative, American Indians have a fixed place in history, unchanging and locked in the past, savage and childlike thus demonstrating why you can't teach U. S. history without American Indians (McNickle Center 2013).

American law, founded on an earlier Anglo law tradition, has used these historical stereotypes in order to determine the political status of Native Americans (*Cherokee Nation v. Georgia 1831*), who has the right to control land title to ancestral landscapes (*Johnson v. McIntosh, 1823*), and who has the right to terminate Native American treaties and land rights (*Lone Wolf v. Hitchcock 1903*). As discussed earlier, these ancestral landscapes are in fact a critical element in the formation of and continuation of American Indian identity and well-being. This body of case law as well as important legislation (General Allotment Act, Curtis Act) effectively gave control of American Indian identity to the courts, Congress, and to the desires and whims of the non-Native American public.

It is important to note that American law is inherently political in nature and cannot exist outside of the political process. In fact it is the very conflation of law, politics, race and power which are at the root of the historical and modern codification of racial injustice and power which forms the modern legal system and disenfranchises many racial, political, and ethnic groups such as American Indians and has led to the rise of a critical race theory:

Scholars, most of whom are themselves persons of color, challenge the ways that race and racial power are constructed by law and culture. One key focus of critical race theorists is a regime of white supremacy and privilege maintained despite the rule of law and the constitutional guarantee of equal protection of the laws.

Agreeing with critical theorists and many feminists that law itself is not a neutral tool but instead part of the problem, critical race scholars identify inadequacies of conventional civil rights litigation. (Harvard Law School 2015)

Therefore, both Bhabha's concept of fixity and the tenets of critical race theory can serve as important theoretical tools used to better understand the problem of disenfranchisement of Native peoples, how the loss of contact with ancestral heritage lands occurred in a legal framework and provide important avenues for consideration in the implementation a legal-cartographic strategy to reconnect Native people and lands.

Although not often utilized as an effective legal strategy in the United States, Indigenous Cartography is an emerging discipline elsewhere in other former British colonies such as British Columbia, Australia and New Zealand. The goal of this dissertation is to examine how Indigenous groups, specifically First Nations in British Columbia, are using mapping as a legal-cartographic strategy and to look for ways in which it could be successfully implemented in the United States. Although the legal systems in the U. S. and Canada are not completely interchangeable, there are significant similarities in how Canada exerts law over First Nations which warrant closer examination and could provide valuable insight for U. S. Native American law concerns.

Methodology: Comparative Case Study

The research for this dissertation was conducted in the form of a comparative case study to examine the results of Canadian aboriginal treaty cases overseen by the British Columbia Treaty Commission (BCTC) and argued in Canadian courts by the respective First Nations. In these cases, which argue the validity of aboriginal land title as well as the interpretation of treaty language in defining these land titles, Indigenous mapping played a crucial role. In the words of Thomas R. Berger, counsel for the Nisga'a Nation of British Columbia during their Canadian Supreme Court case, "Indeed, without a clear

and scientific process for creating maps, it is impossible for First Nations, Metis, Inuit and other aboriginal peoples to produce documents that will be taken seriously at the negotiating table” (Tobias, 2009: 8). It is precisely the aim of this dissertation to evaluate how effective maps were in the British Columbia cases, identify the strengths and weaknesses of these maps, and begin to make recommendations of best practices that can then be applied to Native American tribal groups operating within the framework of U. S. federal Indian law and policy.

The initial phase of this research examined mapping documents that were submitted by Canadian First Nations in pursuit of a series of legal cases (*Delgamuukw v. British Columbia* [1997] 3 S.C.R. 1010 also known as *Delgamuukw vs. the Queen*), as well as other relevant cases, examined the outcomes of these cases in light of the use of Indigenous cartographic praxis (land-and-occupancy-use mapping, cultural mapping, ethnographic mapping). This comparative case study analyzes the wealth of published information used in these Canadian land and treaty claims cases in order to understand:

- What role did the Indigenous Cartographic discipline play in these cases?
- Which cases resulted in successful outcomes for First Nations peoples?
- How was success measured by the First Nations concerned?
- Does the record tell us why or how Indigenous Cartography was or was not successful?
- Can principles for successful Indigenous Cartographic praxis emerge from this comparative case study?

Once these cases are analyzed, the data collected will then be compared to Native American groups in the United States in order to understand:

- Can any of these principles inform a larger Indigenous Cartographic praxis?
- Can any of these principles be translated specifically to Native American groups in the United States operating under a framework of U. S. federal Indian law and policy?

The overall goal is to distill the principles and “lessons learned” from the First Nations model to see if they can be used to improve the effectiveness of the cartographic praxes of other Indigenous groups, specifically those in the United States.

Shared Roots But Different Outcomes

Although the United States and Canada share common English property law roots, the ways in which Indigenous peoples hold rights and lands within each separate sovereign entity is actually quite different. Beginning after the American Revolution, the United States’ policy toward American Indians diverged from that of Canada in both the recognition of Indigenous rights, and the ways in which rights to land are recognized. Since independence from Britain, the ideology of U. S. lawmakers has been an assertion of the taking of Indian lands as a right bestowed upon “civilized” nations generally, and to the United States to “the exclusion of all other Europeans” (*Johnson v. McIntosh 1823*) specifically. In what is largely accepted as the first Indian law case in the United States, U. S. Supreme Court Chief Justice John Marshall stated that the United States had the right to take these lands away from Indian peoples because European “discovery gave title to the government by whose subjects, or by whose authority, it was made, against all other European governments, which title might be consummated by possession” (*Johnson v. McIntosh 1823*). Effectively, Marshall argued that although Indian people

had been “the rightful occupants of the soil” (*Johnson v. McIntosh 1823*), the United States possessed “an exclusive right to extinguish the Indian title of occupancy either by purchase or by conquest” (*Johnson v. McIntosh 1823*).

Federal Indian law scholar Robert A. Williams, Jr. summed up this early U. S. Indian land policy as an adaptation of an older medieval tradition that had been adopted and incorporated into the basis for U. S. federal Indian law: “Marshall’s opinion in *Johnson* relied exclusively and directly upon the mediievally-derived legal tradition of Christian European crusading conquest and denial of non-Christian infidel peoples’ rights brought to the New World by Columbus” (Perea *et al.* 2007: 185). However, this racially-biased system of land ownership and what the definition of “ownership” implied, would later be clarified, albeit in an irregular and inconsistent manner, throughout the mid to late 19th century.

Treaties signed between tribal entities and the U. S. government were supposed to regulate much of what transpired from the 17th to 19th centuries and established specific land ownership rights for tribal entities. However, the underlying framework for U. S. federal Indian law regarding land tenure (access, possession, ownership, and other rights) was laid over a basic tenet of aboriginal title which firmly established that although Christianized whites could own merchantable title to the land, other rights to lands by Indian peoples was possible, in principle.

In the establishment of these relations, the rights of the original inhabitants were, in no instance, entirely disregarded; but were necessarily, to a considerable extent, impaired. They were admitted to be the rightful occupants of the soil, with a legal as well as just claim to retain possession of it and to use it according to their own

discretion . . . and their power to dispose of the soil at their own will, to whomsoever they pleased, was denied by the original fundamental principal, that discovery gave exclusive title to those who made it. (*Johnson v. McIntosh* 1823)

In other words, in the U. S., although Native people might have possessory rights to their lands, these possessory rights could easily be altered by treaty, abrogation by Congress, or even by forced removal.

As in the United States, Canada had originally recognized a similar right of aboriginal title for First Nations. And in the mid-1850s, several treaties, called the Douglas Treaties, were created that allowed First Nations people to retain access to ancestral lands for purposes of hunting and fishing as well as established “reserves.” However, when British Columbia joined the Canadian Confederation in 1871, British Columbia refused to recognize aboriginal title or the Douglas Treaties—a position that the government of Canada would maintain until late into the 20th century and a ban was enacted on any aboriginal land claim activity (BC Treaty Commission 2014: 4). However, in a series of Canadian Supreme Court cases in the 1970s, six of the seven Supreme Court Justices ruled that although aboriginal people had the right of occupancy of the lands, they were split as to the question of if these rights still existed, or had been extinguished previously (BC Treaty Commission 2014: 5). The court’s recognition of aboriginal title set in motion a series of cases designed to prove that aboriginal title rights still existed.

In the first case, *R. v. Sparrow*, in 1990 the court ruled that “unless legislation had a ‘clear and plain intention’ to extinguish aboriginal rights, it did not have that effect” (BC Treaty Commission 2014: 7). Because rights to fish for aboriginal people had been

regulated, they still existed and fishing rights had not been extinguished. However, the court did not address the question of land rights. In the second case, *Delgamuukw v. British Columbia*, in 1997 the court once again asserted the fact that aboriginal title does exist and that rights to hunt and fish also exist, but did not make a determination as to whether the plaintiffs had this aboriginal title. And in 2005, in the case of *R. v. Marshall* and *R. v. Bernard*, treaty rights were upheld in Nova Scotia but only to protect traditional activities, not new or different ones (BC Treaty Commission 2014: 9). But this court emphasized that if an aboriginal group could prove “exclusive and regular use of land for hunting, fishing or resource exploitation” (BC Treaty Commission 2014: 10), they could retain those rights only, not land title rights. According to the British Columbia Treaty Commission:

The courts have confirmed that aboriginal title still exists in BC but they have not indicated where it exists. To resolve this situation the governments and First Nations have two options: either negotiate land, resource, governance and jurisdiction issues through the treaty process or go to court and have aboriginal rights and title decided on a case-by-case, right-by-right basis. (BC Treaty Commission 2014: 11)

And in later cases, the Canadian courts have ruled that consultation with aboriginal groups must take place, there is a continuing duty to consult, but also indicated that these consultations may not always end in the restoration of rights or recognition of the existence of such rights (BC Treaty Commission 2014: 13).

Limitations

This research seeks to understand the role that Indigenous cartography has played in international Indigenous affairs in order to distill and coalesce successful principles that can be utilized by Native American tribal groups in the United States. In this dissertation work, a deliberate attempt was made to conceptualize Indigenous perspectives as not a single perspective, but as a multitude of perspectives, identities, ancestries and experiences. The perspectives presented in this work are of their respective Indigenous groups and it must be understood that they may not reflect the views of all the members of an Indigenous group and certainly should not be thought of as seeking to portray or reflect the views of all Indigenous people. The information used in this dissertation work is derived from publically available, published information. It is important to understand that issues such as ancestry, spirituality, and personal identity are complex matters and contain many elements which are beyond the scope of this project. Although in some instances the word identity or land may be used to refer to general categories, the idea of Indigenous identity is much more accurately described in plural fashion—as Indigenous identities—recognizing that each tribe, group, or member has different ways of creating their own distinct identities by their unique relationship to their specific and separate ancestral heritage lands and traditions. Likewise, in this comparative case study, it is important to note that all Indigenous groups and therefore all people do not characterize their relationships to the land in the same way. Although there may be commonalities, the purpose of this research is to examine ways in which Indigenous cartography can positively influence the outcomes of land-based concerns, not to provide definitive inventories of factors that will apply to all Indigenous groups.

Ethical Considerations

In conducting this research, it was apparent from the literature that some aspects of Indigenous identity are inherently private and that many times Indigenous groups have been reluctant to give specific details regarding sacred categories due to cultural and religious prohibitions about revealing sacred information to outsiders, non-Indians, nontribal members, or to uninitiated tribal members. Therefore, to respect and uphold tribal sovereignty, all information used in this dissertation was derived from published court documents and other public sources. Sensitive cultural information and locational information about specific sacred sites was deliberately not included in this dissertation because it does not add significantly to the research conclusions and could compromise the protection of these sacred sites. All research for this dissertation work was conducted in good faith, in accordance with the Arizona Board of Regents guidelines for human research. This project, as it was submitted to the University of Arizona's Institutional Review Board, was determined to not constitute human research under the definition approved by the Arizona Board of Regents. Documentation provided to and approved by the University of Arizona's Institutional Review Board for Human Subjects Determination is on file at the University of Arizona, the American Indian Studies Department, and is available from the author upon request.

CASE STUDY: OKLAHOMA INDIAN ALLOTMENT, THE FINAL SOLUTION AND
SETTLING THE “INDIAN QUESTION”

The Critical Role of Cartography in Land Dispossession: An Historical Model

The reasons behind a project such as this that examines best practices designed specifically for Indigenous cartographic praxis are inherently understood by those whose histories include forced migrations and the tremendous loss of ancestral lands that occurred during the mid-to-late 19th century. For example, among the lands that would eventually constitute the future state of Oklahoma, a staggering 20 million acres was lost to Native peoples in just a seven-year period during implementation of the governmental policy known as allotment (Debo 1940). This policy didn't apply just to the former Indian Territory. All across the western United States in the latter-half of the 19th century, American Indians lost more than 90 million acres during the allotment years in which the General Allotment Act has often been described as the single most devastating U. S. policy towards Native Americans (Williams 2014, Debo 1940, Debo 1970, Greenwald 2002, Deloria *et al* 1999, United Nations 2012a, Perea *et al* 2007, Hoxie 2001). In this case study, I present a relevant, if lengthy, example derived from my own original primary source document historical research that serves to underscore the importance of cartography, and the cataclysmic consequences that occurred when American Indians became pawns in the high-stakes game of land acquisition and natural resource extraction. I ask, what lessons can be learned from this historical case study that will enable Native Nations today avoid the severance of the land-identity connection in today's new era of natural resource extraction? During the allotment era of the past century, American Indians did not have a voice in how the rules were made and were not

part of the cartographic process. However, today's descendants are the unfortunate heirs of a policy that devastated tribal landholdings, dismantled Native communities, and left a lasting legacy of intergenerational trauma and historic grief that continues today.

Allotment forced the breakup of large tracts of communally held, tribal reservation land into small individually owned parcels, or allotments. Because these individual allotments could be leased or eventually sold off, large tracts of tribal and ancestral lands quickly disappeared and fell into non-Native and many times corporate hands. Because Native identity essentially comes from ancestral lands (Pueblo of Acoma et al 2009, Swentzell 1993, Roberson and Momaday 1998, Basso 1996, United Nations 2008, 2012a, 2012b, Stuart-Richard 2012) the removal of Indigenous peoples from these lands was essentially the removal of an important part of their identities. Although this identity-land connection is today a widely accepted concept, in the late 19th century, in the eyes of the American public, Native people were still defined as savages in a nation of superior sovereigns (Williams 2012: 217) and were still trying to prove to the rest of the world that they were, in fact, even human (*Standing Bear v. Crook 1879* and Getches et al 2011: 186-187).

In order to understand the critical role that cartography played in the implementation of this malintended governmental policy and a tool used to disenfranchise Native peoples, it becomes necessary to see how cartography was used to advance the larger geopolitical, governmental as well as private corporate interests. In the case of the implementation of the General Allotment Act as it was implemented under the Curtis Act in the future state of Oklahoma as studied below, it is necessary to fully understand the ways in which these land-use boundaries intersected and were heavily

intertwined with both private and public financial interests and the ways in which maps were then used as the weapon to devastate tribal communities. Although this perfect storm of outside interests came together in the late 19th century, Native people today are still suffering the effects of intergenerational trauma and historic grief associated with this cataclysmic loss of lands and tribal identities. In the case of allotment of Indian lands, the era of Civil War Reconstruction, railroad interests, congressional budgets and westward expansion all collided to fuel an unprecedented grab for lands in areas west of the Mississippi in the spirit of capitalism and manifest destiny. The court cases and legislation which unfolded in the years after the Civil War effectively precluded Native groups from participation in the reorganization of political boundary lines during the Reconstruction era.

The case study presented below examines the machinations and ambitions that were to ultimately dispossess tribal people of lands via cartographic instruments and effectively demonstrates perhaps the worst case scenario when Native people aren't involved in these processes in effective roles and underscores the critical need for self-determination in the cartographic-legal administration of their own lands. Because this dissertation project endeavors to understand ways in which Indigenous cartography can be used by Native Nations as part of a greater legal-cartographic strategy in the United States, it becomes important to examine the process and mechanics in this historical case study in order to fully understand forces which acted outside Native communities and the role that cartography played in the dismantling of the Native American land base. In this case study, it is critical to look for ways in which Native people were (or were not) represented and how the process circumvented Native input, rights, and concerns.

Redefining the “Indian Question”

The years between 1869 and 1903 and the events which unfolded during this time established a new framework for Native rights in the U. S. and pushed forth an agenda and continuation of former colonial expansionist policies. During this era, a staggering wealth of natural resources were to be discovered on Indian reservation lands, Indian treaties would be abrogated and the U. S. court system conveniently began to question whether an Indian was indeed a person, a human being, or for that matter could possess a soul (*Standing Bear v. Crook, 1879*). Maps produced during this era sought to establish the superiority of the United States on a global scale and were used as assertions of power, nationhood and legitimacy just as the English and her former colonies had done previously (Monmonier 1996: 88-89). An in-depth analysis of how the elements of cartography, case law, legislation, and private and governmental financial interests came together and formed the perfect storm is detailed below. This case study in power relations and maps examines the elements which resulted in the removal of 20 million acres of Indian land from Native people in less than a decade and formed the future state of Oklahoma. As a part of my original Ph.D. research, it serves as an example of how maps can easily be used to disenfranchise and defraud Native Nations.

As an entryway to understanding an era which produced an important shift in the American political and corporate landscape and would eventually help to unravel Native land rights, it is necessary to examine the rise of corporate and political power through a sociological lens. As detailed by sociologist C. Wright Mills in his theory of the rise of corporate power in *The Power Elite*, “the supremacy of corporate economic power began, in a formal way, with the Congressional elections of 1866, and was consolidated by the

Supreme Court decision of 1886 which declared that the Fourteenth Amendment protected the corporation” (Mills 1956: 271). During this time of economic uncertainty after the Civil War, corporations began to rise to power and gained significant political allies against Native people in ways that are not commonly acknowledged.

By 1869, economic interests in the United States were recognized as being limited by the very existence of Native Americans—particularly in the western frontier areas. In the post-Civil War era, westward expansion reignited with a push to build the great transcontinental railroad system expanding laterally across the U. S. and linking east and west coasts. As a part of this process, the U. S. government chartered the Union Pacific Railroad. But buried within the expansionist policies of the U. S. was the deep-seated belief that Indian peoples stood in the way of progress and despite centuries of warfare, had failed to yet be fully exterminated. Congressional and Senate committees during this time seemed very concerned that the presence of Native Americans in these areas presented a very real threat to not only Civil War Reconstruction efforts, but to the physical and economic expansion that many felt was their God-given right under the Manifest Destiny doctrine. Congressional reports began to portray Native peoples in the most savage terms imaginable and the racist discourse reflected a new American metanarrative. American Indians were no longer valuable allies with which to sign treaties of peace and mutual confederation, but were vilified in the press, in the courts and on Capitol Hill. Despite factual evidence that showed Native American populations to be at all-time lows (Figure 8), expansionists and corporate policymakers continued to prey on white American fears and portrayed Native Americans as a real threat to the way of life in America. One such example is a U. S. Senate report conflating the military

necessity of the Union Pacific Railroad with this invented hysteria using anti-Native sentiments.

The causes of war will continue while the large game lasts, unless sooner the Indians learn their inferiority and submit to its destinies. Indian cavalry, perfect in horsemanship, unattached to fixed abodes, and free from the ties of accumulated or fixed property, deadly with the arrow, and armed with the best breech-loaders, are slow to learn that they cannot with impunity scalp and rob white borderers and travelers to the gold regions. Indeed, till General Sheridan came, their teaching had all been the other way. This Parthian cavalry roam, hunt, pillage and murder, from the British possessions to the boundary of Mexico. They attack trains, camps and ranches, with the suddenness that is generally a fatal surprise. They come unseen. They are out of sight and beyond pursuit in a moment. Our warfare upon them is a tardy pursuit of vanishing trails. To fight them with infantry and cavalry in the season of grass is to fight shadows. (U. S. Senate, 1869: 15)

As well as portraying the remaining Native peoples as dangerous bloodthirsty savages, the U. S. Senate began to offer a solution to the American public cowering in fear and posed this problem in the form of a question. In the very next paragraph of that same Senate report under the heading “Pacific Railroads Will Settle the Indian Question,” proponents of the Union Pacific began to outline what would become U. S. Indian policy for the next three decades: profits, land and Indian extermination as the original “Final Solution.”

They [Native people] can only be permanently conquered by railroads. *The locomotive is the sole solution of the Indian question*, unless the government

changes its system of warfare and fights the savages the winter through as well as in summer. The railroads will settle the country as they progress. The water stations and freight stations built on the lines immediately become the germs of towns and the centres of military operations. Farms follow the roads, and a column-front of self-sustaining settlements moves slowly but surely toward the Rocky mountains [sic.]. As fast as the roads go by military posts and forts, these become useless and are abandoned. The roads push the border further west every day. *As the thorough and final solution of the Indian question, by taking the buffalo range out from under the savage, and putting a vast stock and grain farm in its place, the railroads to the Pacific surely are a military necessity. As avenues of sudden approach to Indians on the war-path, and of cheap and quick movement of supplies to troops, they are equally a military necessity.* (Emphasis in original, U. S. Senate 1869: 15-16)

In order to buttress this reasoning, the Senate garnered testimony from Civil War hero General U. S. Grant who claimed that the railroads are the answer “to a permanent settlement of our Indian difficulties” (Ibid.). The Senate also provided a financial rationale in the form of a cost-comparison showing that since railroads will surely end the Indian wars, it would result in a cost savings to the federal government of nearly a million dollars a week at a time when the U. S. was struggling to replenish the treasury after the Civil War (Ibid.). The minority view in this Senate document heavily criticized this report for its over-reliance on granting of public domain lands to the railroads and

TABLE 1.1 Native American Population of the United States^a

Year	Population	Percent Change	Source
1500	10,000,000+ ^b	N/A	estimate
1800	600,000	-94	estimate
1820	471,000	-22	census
1847	383,000	-18	census
1857	313,000	-18	census
1870	278,000	-11	census
1880	244,000	-12	census
1890	228,000	-7	census
1900	250,000	+10	census
1910	279,000	+12	census
1920	244,000	-13	census
1930	332,000	+36	census
1940	345,000	+4	census
1950	357,000	+4	census
1960	524,000	+47	census
1970	792,000	+51	census
1980	1,367,000	+73	census
1990	1,900,000	+39	census
2000	2,434,000	+28	census ^c
2050	4,405,000	+81	projected ^c

^aCompiled from Thornton (1987), Snipp (1989), Reddy (1995: Tables 10, 12, and 18), and 2000 census data.

^bThis estimate of ten million is conservatively in the middle of various modern estimates ranging from eight million to eighteen million (see Thornton [1987, 1997] and Stannard [1992] for comprehensive discussions of native population figures [also see Snipp 1989]).

^c2000 U.S. census data.

Figure 8: Native American population estimates

By the last few decades of the 19th century, Native populations had decreased to their lowest levels recorded: less than a quarter million people by 1890. (Krech 2000)

intimated that the majority view was promulgated by Senators who had made large financial investments in the Union Pacific during the Crédit Mobilier scandal through highly illegal insider trading (White 2011: 63). This minority view made it clear that Senators who wished to appropriate more public lands for railroad interests would risk exposure to more scandal.

Governmental financial interests had now become conflated with political and private financial interests during this historical time period which amounted to a redefinition of what it meant to be an American. At the same time, the very real need to replenish the U. S. Treasury after the devastating Civil War coincided with a major rewriting of the American metanarrative. As a country seeking to redefine itself as a single entity emerging from a slave-driven economy (at least in the South), the United States was seeking to redefine itself by looking to the western frontier. Railroads were the mode of transportation to this place but in the minds of post-bellum America, who were its enemies now? And where would the next great exploitation be found? Westward expansion between the eras of Revolution and the Civil War extended to the eastern banks of the Mississippi and the removal of Native people from rich farmlands coveted by white settlers had been the mode *de jour*. After the Civil War, as the age of the iron horse began to drive settlers and commerce westward, the thirst for land and natural resources began to plant new inspiration in America as the idea of manifest destiny worked as a force to both unify and rebuild. During this time, representations such as John Gast's "American Progress" (Figure 9) provided imagery for new American imperialistic ambitions couched as a divine right to manifest destiny and justified both



Figure 9: John Gast's American Progress, 1872.

(Library of Congress)

westward expansion and further Indian removal.

American Indians and Shifting Federal Policy

Despite the disagreement over the use of public domain lands and who would actually benefit from the expansion of the railroads, tucked neatly into the center between the Senate majority and minority reports of 1869 was a fold-out map (

Figure 10) with railroad lines neatly drawn across the vast political landscape that was the United States in 1869. Native peoples and the lands which they occupied were conspicuously absent—as if they never existed. Thicker lines differentiated the Northern and Southern Pacific Railroads as well as the proposed lines from the rest and most notably traveled directly through heavily populated Indian-held reservation lands. These lands were guaranteed to the tribes by treaty and as such could not be appropriated for federal use. Nevertheless, it was clear that by 1869, the lands populated by Native people in the future states of Washington, Oregon, Idaho, Montana, North Dakota, Minnesota, Oklahoma New Mexico, Arizona and California were to become the targets of federal and private railroad interests of the future. The assurances of land and wealth for restless eastern settlers was a promise that Senators could take back to their constituents and guaranteed that Indian-held lands and treaty guarantees wouldn't last. This 1869 Senate railroad expansion map was a virtual blueprint for perhaps the most devastating federal Indian policy ever devised: allotment. In order to secure public and governmental support for railroad expansion, proponents knew that relying on grants of public lands to build the

railroads was now heavily opposed in the Senate so land speculators and government officials

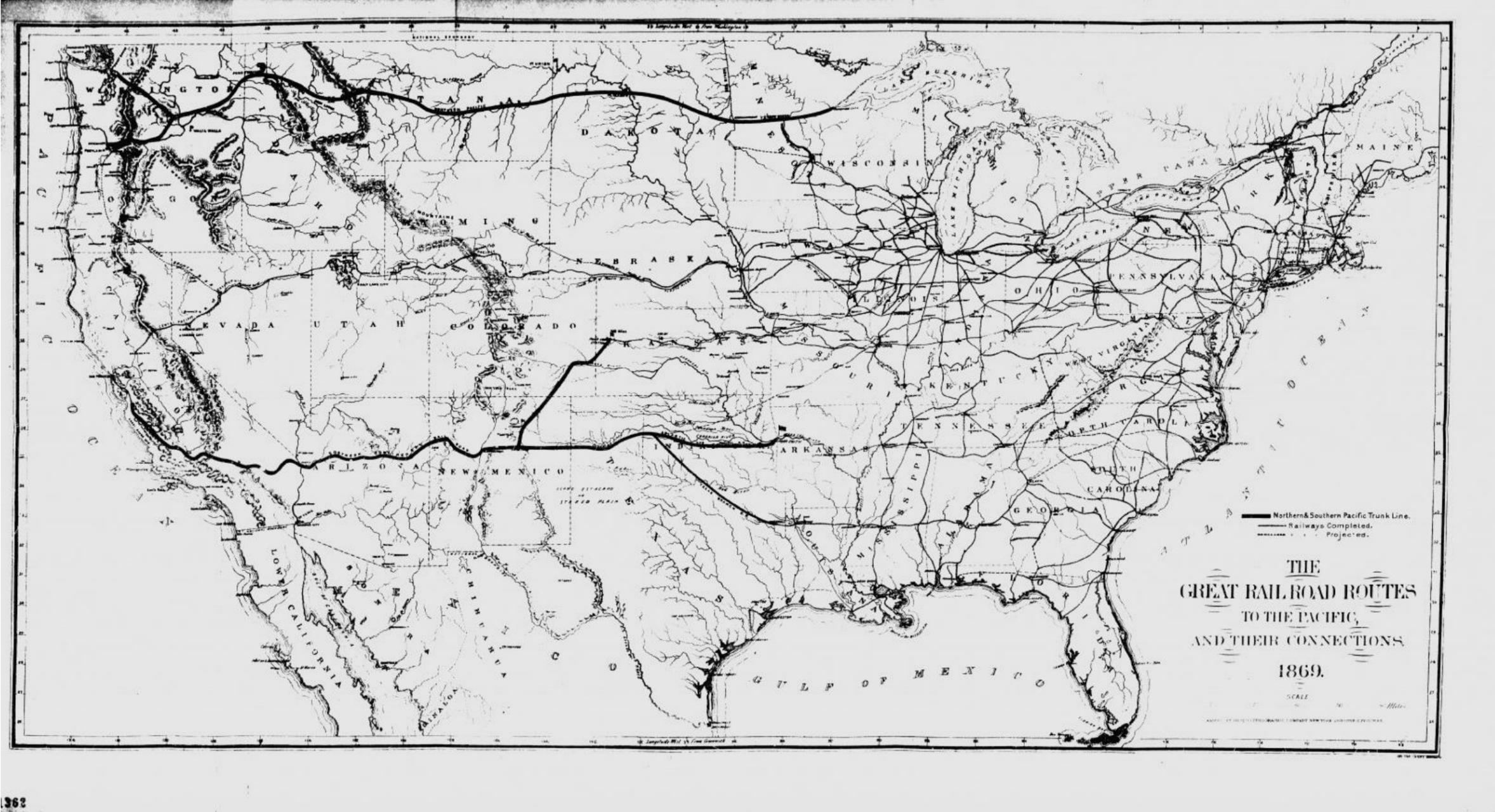


Figure 10: U.S. Senate railroad map of 1869

(U.S. Senate 1869)

began to look toward the Indian reservations. These lands were protected by treaties and in 1869, the U. S. federal government was still actively making treaties with Native American tribes. However, some scholars have argued that as early as 1862, federal policy towards Native American tribes had shifted and that a new era of Indian removal had begun:

Homestead acts were passed, beginning in 1862, to open public land for settlement. The railroads received grants of some 91 million acres, of which only a small part was Indian land. Large conveyances were made to new states and mineral, timber, and range resources were opened to settlers' use. . . The term 'public lands' excludes Indian lands. (Getches, Wilkinson, Williams and Fletcher, 2011: 176)

And as the minority view of the 1869 Senate report shows, there was to be little to no tolerance from the public for appropriating any further public lands for railroad use.

In April 1870, the U. S. Senate made a formal inquiry to the Committee on the Judiciary to clarify the status of Native Americans as U.S. citizens and to determine if treaty obligations to the tribes could therefore be abrogated. The report issued by the Committee on the Judiciary responded in December that "The white man's treatment of the Indian is one of the great sins of civilization, for which no single generation or nation is wholly answerable, but which it is now too late to redress. Repentance is all that is left for us; restitution is impossible" (U. S. Senate 1870: 1). The report concluded that because Indians were not freed by the 14th Amendment to the Constitution and were not

counted for purposes of congressional representation (because they were not taxed), and so long as they held membership in a tribal entity they were not to be considered citizens of the United States. Further, this report concluded that the practice of treaty-making with tribal entities had become somewhat slack in recent years and warned that because of the fragmentation of tribes due to U.S. policies, the Senate “ought to admonish the treaty-making power to use greater circumspection hereafter” (Ibid. 11).

Treaty Debt and Appropriations

It is my contention that the reason Congress had concerned itself with the status of Indians as citizens and the abrogation of treaty rights in the spring of 1870, was the noticeable increase in annual Indian treaty financial obligations. This had become apparent just months before with the presentation of the fiscal year 1871-1872 Indian Affairs budget. Previous appropriations for Indian Affairs had shown a slow but steady increase in both the total Indian Affairs appropriations and the amount of these appropriations committed to fulfilling treaty obligations (U. S. House of Representatives 1868, 1869). From 1869 – 1870 the total amount appropriated had remained relatively stable. In just one year, 1871, the budget amount dedicated to fulfilling treaty obligations saw a sharp increase (Figure 11). Whereas the 1870-1871 budgetary numbers showed 60.27% of the total Indian Affairs budget dedicated solely to treaty obligations (U. S. House of Representatives, 1869), the following year, 1871-1872, the amount dedicated to fulfilling annual treaty obligations jumped to 73.8% of the total Indian Affairs appropriation (U. S. House of Representatives 1870). This was due to several new treaty obligations incurred with the Blackfeet, Cheyenne and Arapahos, Creeks, and others.

Although the issuance of the opinion by the Committee on the Judiciary in late 1870 which stated treaties could not be abrogated by granting of citizenship to Native peoples, by March of 1871, it had become clear that that the abrogation of treaties would be very difficult but not impossible. Until a more satisfying financial solution could be found, Congress begrudgingly approved the 1871- 1872 appropriations budget for Indian Affairs but only after adding the following rider:

Hereinafter, no Indian nation or tribe within the territory of the United States shall

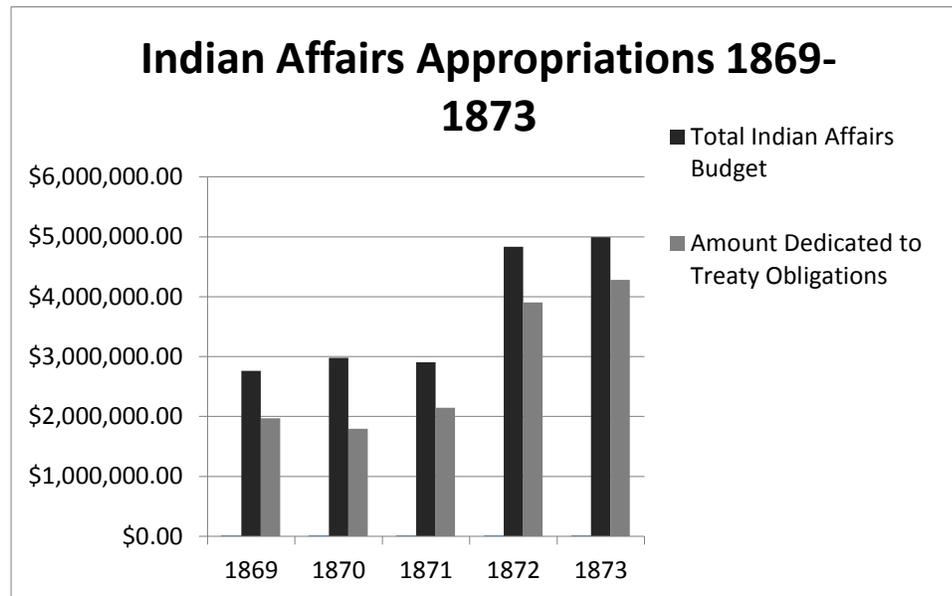


Figure 11: Indian Affairs Appropriations 1869 - 1873.¹

¹ Compiled from U. S. House of Representatives, Secretary of the Treasury Indian Affairs Appropriations, 1868 – 1873.

be acknowledged or recognized as an independent nation, tribe, or power with whom the United States may contract by treaty: Provided, further, that nothing herein contained shall be construed to invalidate or impair the obligation of any treaty heretofore lawfully made and ratified with any such Indian nation or tribe.

(U. S. Statutes at Large, 1871).

Although Congress could not regulate with whom the President of the United States signed treaties, the Senate could now ensure that no further treaties would be ratified, thus constructively ending treaty-making with tribes.

Once again in the following December when the yearly appropriations budget was submitted for congressional approval for the 1872-1873 fiscal year, the total amount requested for Indian Affairs showed a tremendous increase from the previous year and the amount dedicated solely to treaty obligations was now nearly 81% of the annual budget for Indian Affairs (U. S. House of Representatives 1871). This shocking increase was almost solely due to the Treaty of Fort Laramie of 1868 negotiated with the Oglala, Miniconjou and Brule bands of Lakota, Yanktonai Dakota, and the Arapaho Nation regarding the ownership and control of the Black Hills and land and hunting rights in South Dakota, Wyoming, and Montana. As a line-item in the 1872-1873 fiscal year budget, annual payments due to this treaty alone exceeded \$1.5 million and constituted nearly 40% of the treaty obligations of the entire Indian Affairs budget (Ibid.). Perhaps more importantly, these payments were scheduled to continue for another 30 years thus prompting Congress to look for a way around honoring these treaty obligations. The

Committee on the Judiciary had been clear on both the citizenship status of Native Americans and the question about the possibility of treaty abrogation.

It was, in fact, the sharp increase in Indian treaty obligations that continued to alarm members of Congress and effectively swayed votes to provide federal support for railroads in general, and the Union Pacific Railroad specifically. In his report to Congress in 1874, Commissioner of Indian Affairs Francis A. Walker, in response to the Senate appropriations rider of 1871, summarized what he called “The Indian Question” into two separate questions that had been at the root of discussions of Indian affairs. “The Indian question naturally divides itself into two: What shall be done with the Indian as an obstacle to the national progress? What shall be done with him when, and so far as, he ceases to oppose or obstruct the extension of railways and settlements?” (Walker 1874: 7). The answer to this question had been a foregone conclusion by 1869 in the Senate report discussed above and authored by W. M Stewart detailing the great expense incurred by the U. S. Treasury in the administration of and protection of lands from Indian tribes. Stewart had concluded that in dealings with Indian tribes, the cost was equal to \$1 million per week and recommended that Congress support railroads by extensions of government aid by way of guaranteeing interest on bonds for the Union Pacific Railroad and others (U. S. Senate 1869b). Union Pacific Railroad President Charles Adams, Jr. believed that largely because of these bond interest guarantees, the Union Pacific Railroad, by providing an immense cost savings to the federal government had effectively “settled the Indian question” (Adams 1885), a sentiment that had been accurately predicted by Senator Stewart sixteen years earlier as he noted that the Pacific Railroads were the sole solution to the Indian question (U.S. Senate 1869: 15).

By 1871, Congress had firmly established a moratorium on new treaties with Indian tribes and Henry Dawes, a Senator from Massachusetts had been exposed for his insider trading activities with the Union Pacific Railroad and the Crédit Mobilier fraud scheme, was not re-elected to the Senate seat he had coveted. “The Springfield Republican picked up the attack, and Dawes lost his bid to become senator from Massachusetts, returning instead to Congress” (White 2011: 63). In the annual Report of the Secretary of the Treasury on the State of the Finances for The Year 1868, the Treasury Department had noted that since the end of the Civil War in 1865, the country was experiencing mounting debt, decreasing revenues and cited a lack of confidence in the creditworthiness of the United States. The treasurer recommended expanding into revenue-producing fields of natural resource extraction and increased partnership with the railroads.

During this time, Congress began to shirk the responsibility that it had to Native people. In the early decades of American policy, Congress had assumed a somewhat protectorate role over Native people in order to limit the interaction of Natives with the general population by various avenues such as the Commerce Clause. However, after the Civil War this role had evolved into one where the increasing costs of protection now outweighed any treaty interest that the United States had with Indian people and Congress was looking for ways in which to overturn this policy and move into an era of control over land and resources and disentanglement with Native people. However, Congress had effectively boxed itself into a corner with the court system and an antiquated Indian control policy.

Abrogation Policy and the General Allotment Act

However, by the end of 1885, this national desire for natural resources located on reservation and other tribal lands was about to be satisfied. In his State of the Union Address in December 1885, President Grover Cleveland recommended reducing the size of Indian reservations and returning the “unused” lands to the federal government. He also recommended the subdividing of remaining reservation lands, and to deciding which Indians should be granted citizenship, if any. Additionally, President Cleveland called upon recommendations for areas where governmental financial obligations should be discontinued and also made careful note of the now \$6 million per year spent on the Indian Affairs Office and treaty obligations (U. S. Senate 1885: 118). Not surprisingly, a push for Indian allotment had been slowly winding through Congress since 1880, but finally passed as the General Allotment Act on February 8, 1887. This act specifically authorized the President to break up reservation lands and distribute them to individual Indians. Any Indian whose name appeared on a tribal roll on reservations targeted by the General Allotment Act was now forced by law to take an allotment. Perhaps not surprisingly, the map of reservation lands which were being targeted for allotment produced by the Secretary of the Interior at the President’s request (Figure 12), nearly perfectly aligns with the earlier 1869 Senate railroad map (Figure 10) —especially in the areas of proposed railroad lines and major railroad terminus lines which were critical to the completion of the nation’s transcontinental railroads. It is important to note that this map, as it was with all the others produced during the allotment era, was prepared independently of Native input and only shows treaty guaranteed reservation lands but fails to portray ancestral homelands, treaty-

guaranteed hunting and fishing lands, or lands related to trapping, pilgrimages, burials or sacred sites.

Rise of Congressional Plenary Power

Federal Indian case law also shows a similar shift in the authority of Congress, as perceived by the courts, to interfere with Indian affairs, treaties or lands. By 1883, the U. S. Supreme Court found in the case of *Ex Parte Crow Dog*, that despite the racial and cultural superiority that whites claimed over Native people, Congress had no right to interfere in Native issues to include treaty rights. In the opinion of the Court, Justice Matthews stated that:

To give the clauses in the treaty of 1868 and the agreement of 1877 effect, so as to uphold the jurisdiction exercised in this case, would be to reverse in this instance the general policy of the government towards the Indians, as declared in many statutes and treaties, and recognized in many decisions of this court, from the beginning to the present time. To justify such a departure, in such a case, requires a clear expression of the intention of Congress, and that we have not been able to find. (Getches, Wilkinson, Williams and Fletcher, 2011:156-157)

In other words, by the time that the case of *Ex Parte Crow Dog* came to the U. S. Supreme Court in 1883, the Court found that Congress did not have the power to abrogate or cancel treaties and would never have that power unless that power was clearly expressed by Congress itself.

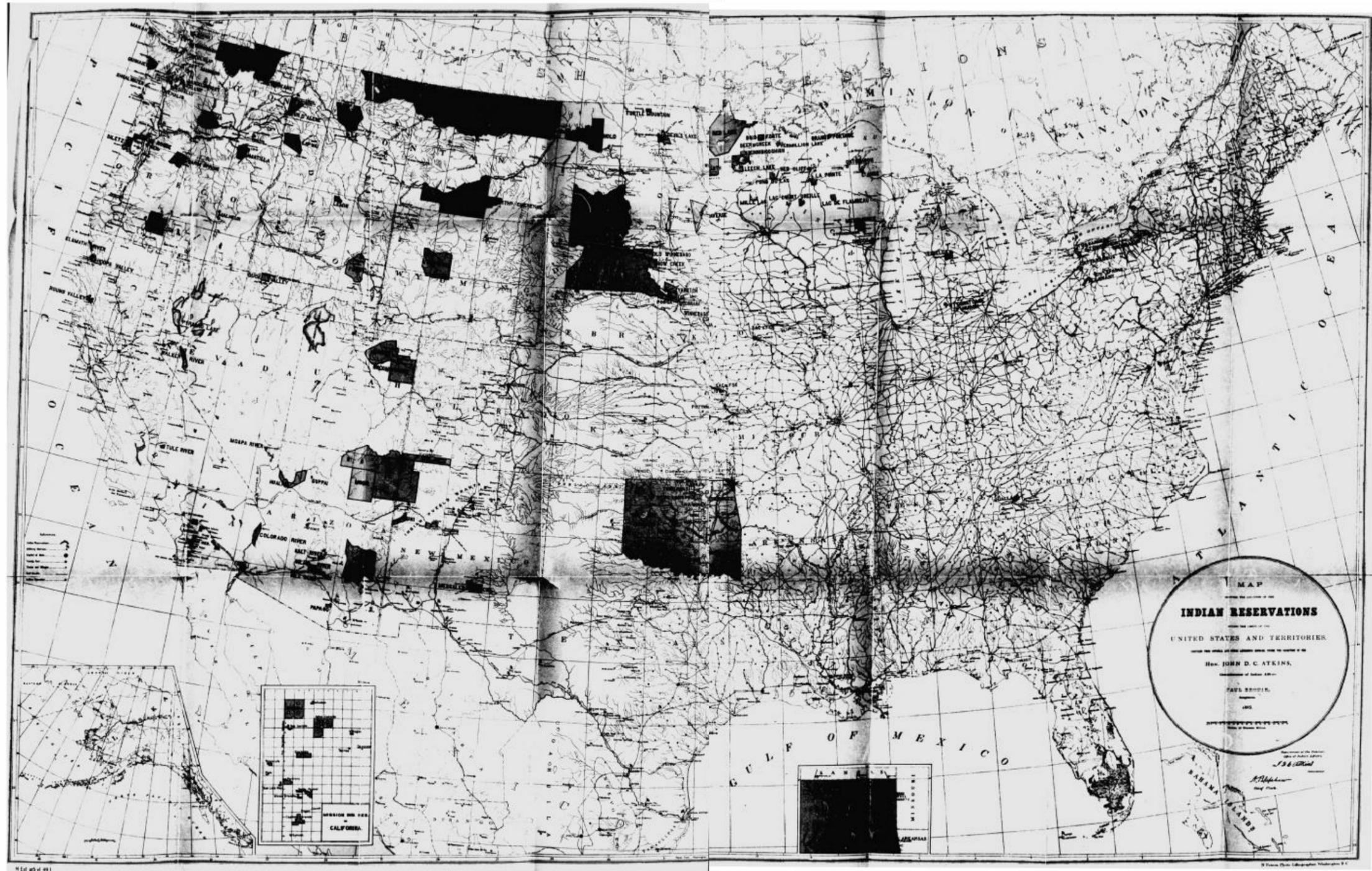


Figure 12: Preliminary allotment map as of 1877
(U.S. Secretary of the Interior 1885)

However, three years later, in the U. S. Supreme Court case *United States v. Kagama*, the Court began to lay out the terms that Congress would need to address if it wanted to seek greater power over Native American tribes. In the intervening years, the Major Crimes Act was passed by Congress in 1885 and gave the federal government jurisdiction to prosecute some crimes committed by Native Americans on reservation lands. In the case *United States v. Kagama*, the question before the court was whether the federal government also had jurisdiction to prosecute Indian-on-Indian crime. In the opinion delivered by Justice Miller:

It seems to us that this is within the competency of Congress. These Indian tribes are the wards of the nation. They are communities dependent on the United States. Dependent largely for their daily food. Dependent for their political rights. They owe no allegiance to the States, and receive from them no protection. Because of the local ill feeling, the people of the States where they are found are often their deadliest enemies. From their very weakness and helplessness, so largely due to the course of dealing of the Federal Government with them and the treaties in which it has been promised, there arises the duty of protection, and with it the power. This has always been recognized by the Executive and by Congress, and by this court, whenever the question has arisen. (Getches, Wilkinson, Williams and Fletcher, 2011: 159)

In his decision, Justice Miller makes use of the language of earlier federal Indian case law and recites the language contained in the three foundational cases of Indian law, often

called the Marshall Trilogy (*Johnson v. McIntosh*, 1823; *Cherokee Nation v. Georgia*, 1831; and *Worcester v. Georgia*, 1832) and rationalizes that if tribes are wards then the U. S. government is the guardian. As such, the guardian must have the power and must have always had that power in order to act on behalf of the wards. Congress has the duty of protection and thus the power. The Court would not take long to determine the name and extent of this power.

In the instance of the so-called Five Civilized Tribes who had been removed from ancestral homelands in the Southeast in the years after 1830 and resettled in the Indian Territory, in the present-day state of Oklahoma, the General Allotment Act of 1887 did not apply. Section Eight of the act specifically excluded these tribes. The removal treaties themselves also shielded these tribes from any outside interference guaranteeing them “that no part of the land granted them shall ever be embraced in any territory or state” (Treaty of Dancing Rabbit Creek 1830). However, Congressman Charles Curtis of Kansas fought to have this exemption removed and by 1898 had successfully convinced Congress to abrogate these removal treaties with the Curtis Act, originally titled “Act for the Protection of the People of Indian Territory.” Curtis, himself part Kansa and Pottawattamie Indian, was a Congressman and later Senator from Kansas who had long advocated attracting railroad interests to his home state and the larger area of the southern plains (Curtis 1892). The Curtis Act formally abrogated the removal treaties’ guarantees of tribal autonomy and repealed Section 8 of the General Allotment Act. What followed was a rush to Oklahoma statehood and the surveying and dismantling of 20 million acres of tribally held reservation lands in an effort to break up the tribal communities.

Congress, at the Supreme Court's urging, had found a way to work around the case law limiting power over Indians. And with few exceptions, by the end of the 19th century had forged new ways in which to interact with a shrinking Native population in order to legally seize control over both valuable natural resources and an immense land base.

Railroads and the Orgy of Exploitation

As part of the General Allotment Act, Section 10 allowed Congress to retain the power to grant rights-of-way to railroads, even when those rights-of-way passed over allotted lands. This would prove to be a critical element in the development of the railroads and the allotment process in Indian Territory. From the beginning, the earliest railroad locomotives had experimented with both wood and coal to power their massive steam engines. But in the 1830s, coal was very expensive averaging \$7.00 - \$10.00 per ton and had to be brought in from faraway places whereas wood was readily available. However, by 1850, coal prices had dropped to \$3.00 per ton and by 1862, railroads were able to secure coal for a mere \$0.75 per ton if it came from a nearby source (White 1997: 87). By 1880, 90% of railroad locomotives ran on coal and by 1900, nearly 100% of railroads ran exclusively on coal (Ibid. 89). Anthracite, as the highest quality coal was found only in very limited quantities in the eastern U. S.. Therefore, railroad locomotives primarily made use of large deposits of bituminous coal. Lower quality coal, such as lignite, meant that railroads had to carry more fuel whereas medium and high volatile bituminous coal contained both the high caloric-heat value required and allowed the railroads to carry more fuel in less space. Nearly overnight in the Indian Territory,

existing coal deposits became a strategic unclaimed natural resource and questions about who could lay claim to it became a paramount issue. Extending from eastern Kansas down through Indian Territory lay the only deposit of medium to high bituminous coal between the Mississippi River and the Rocky Mountains (Figure 13) and lay in the heart of the Creek, Choctaw and Cherokee reservation lands. These coal deposits, as they occurred in Kansas, had already been deeded or leased to railroads and private individuals by the time allotment came to Indian Territory. These massive coal deposits that dominated the eastern half of Indian Territory lay unclaimed at the time of allotment and were to greatly influence the way in which allotments were distributed.

As allotment came to the Indian Territory in the late 19th century, President McKinley appointed Henry L. Dawes as its Commissioner and by 1897 the “Dawes Commission” as it came to be called consisted of Congressman Henry Dawes; Tams Bixby, a newspaper publisher from Minnesota; C. R. Breckenridge a congressman from Arkansas; and T. B. Needles, a U. S. Marshall. The Dawes Commission in Oklahoma began the enormous task of surveying reservation lands, classifying these lands according to suitability for farming, and preparing them for distribution to individual members of their respective tribal nations. Upon surveying these lands before the allotments were made, geologists made note of these immense medium and high volatile bituminous coal beds that dominated nearly the entire eastern half of Indian Territory. Allotment, it seemed, would become subject to the national importance of coal which would influence future railroad expansion as well as fuel an immense land fraud conspiracy that amounted to an orgy of exploitation almost beyond belief (Debo 1940).

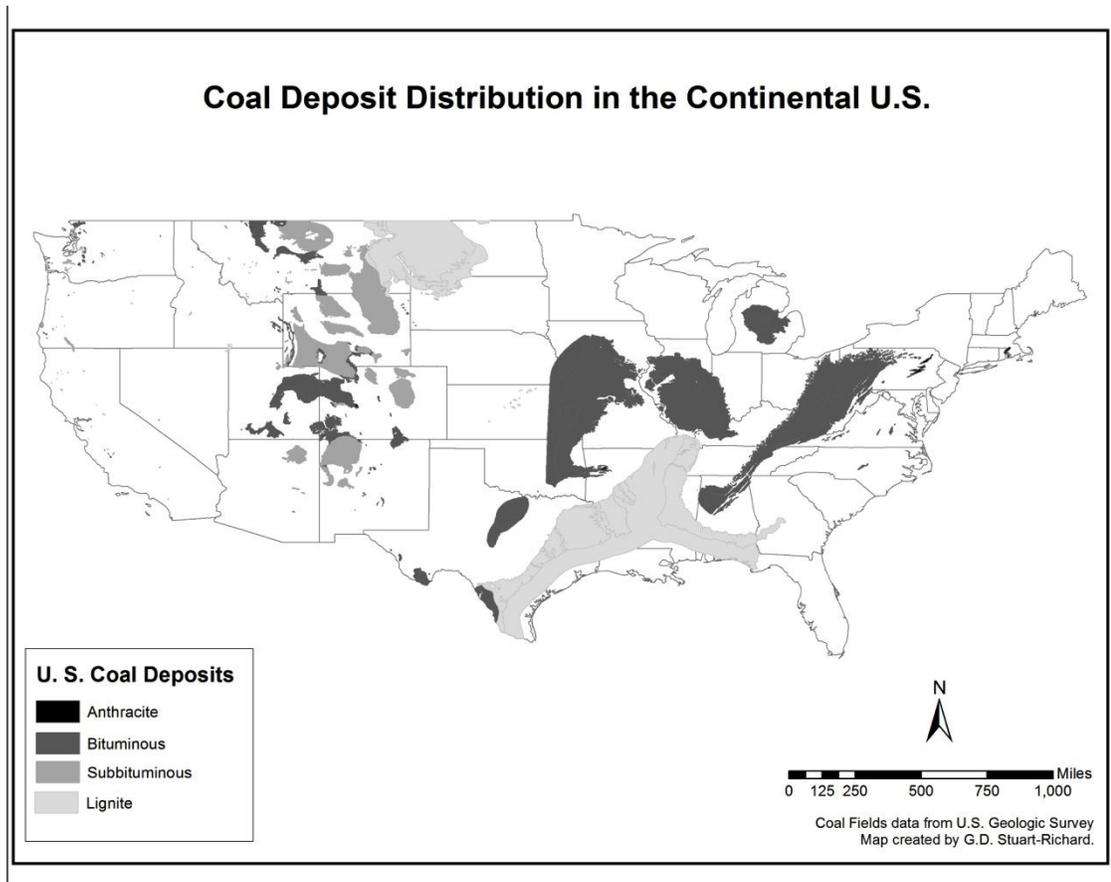


Figure 13: Coal deposit distribution in the U. S.²

When the Watchdogs Joined the Wolves

During the period 1897 – 1902, the allotment process in the Indian Territory progressed as expected. A vast bureaucracy had developed around the land surveying, classification and allotment application process. Henry Dawes had become very ill but

² Data obtained from the U. S. Geologic Survey, Coal Fields of the United States (U.S. Geologic Survey 2014) Map constructed by G. D. Stuart-Richard from USGS National Map Small Scale Datasets.

remained in charge as Chairman of the Dawes Commission even though he remained recuperating at his home in Pittsfield, Massachusetts. Since 1902, Tams Bixby had been acting Chairman in Dawes' absence. But on February 5, 1903, Henry Dawes passed away at the age of 86 and several days later Bixby was named formal Chairman of the Dawes Commission. By virtue of their appointments as federal officials, Dawes Commissioners were prohibited by practice and by law from owning private businesses that could be adjudged as having a conflict of interest with their official duties. However, within ten days of Dawes' death, all three remaining Dawes Commissioners in Oklahoma filed business Articles of Incorporation and began to exploit the valuable land and natural resources for immense personal gain despite their duty to distribute these lands to individual Indian allottees in what is now recognized as the largest land fraud scheme in U. S. history (Debo 1940, Hoxie 2001, Stuart-Richard 2013). In just a few years, most of the over 20 million acres of reservation lands in Indian Territory would fall into non-Native hands. And by 1903, the Supreme Court's position on Congressional abrogations of treaties was again reinforced, if not retroactively, in the U. S. Supreme Court case of *Lone Wolf v. Hitchcock*. In Justice White's opinion in this case, he further clarified the immense power that he believed Congress had always held over Native Americans:

The contention [that Congress could not divest the tribes of their lands except according to the terms of the treaty] in effect ignores the status of the contracting Indians and the relation of dependency they bore and continue to bear towards the government of the United States. . . . Plenary authority over the tribal relations of the Indians has been exercised by Congress from the beginning, and the power has always been deemed a political one, not subject to be controlled by the

judicial department of the government. Until the year 1871 the policy was pursued of dealing with the Indian tribes by means of treaties, and, of course, a moral obligation rested upon Congress to act in good faith in performing the stipulations entered into on its behalf. But, as with treaties made with foreign nations (*Chinese Exclusion Case*, 130 U.S. 581, 600), the legislative power might pass laws in conflict with treaties made with the Indians.

The power exists to abrogate the provision of an Indian treaty, though presumably such power will be exercised only when circumstances arise which will not only justify the government in disregarding the stipulations of the treaty, but may demand, in the interest of the country and the Indians themselves that it should do so. When, therefore, treaties were entered into between the United States and a tribe of Indians it was never doubted that the power to abrogate existed in Congress, and that in a contingency such power might be availed of from considerations of governmental policy, particularly if consistent with perfect good faith toward the Indians. (Getches, Wilkinson, Williams and Fletcher, 2011: 183)

Once the avenues for approach had been cleared by both Congress and the courts, legislation effectively removed valuable lands from Native control. Next, private commercial enterprise stepped up and began the wholesale exploitation of these lands, increased the tax base, and helped to conclude the final chapter in the new narrative of manifest destiny. Massive amounts of land transferred from Native to white hands, the transcontinental railroads neared completion and this new economy had effectively prepared the continent for what would become known as “the Gilded Age”—all at the expense of the American Indian.

Case Study Summary

This case study example shows the immense power that maps can hold when comprised of political boundaries and ambitions that indicate valuable natural resources and vulnerable lands, while ignoring the presence of Native peoples. The result in this case was a devastating impact on Indigenous populations in North America with tremendous loss of lands, subsistence practices, and reinforces the idea that when the interests of private industry work together with governmental controls, there are no moral or legal boundaries. Native people can be completely shut out of the process despite case law and legislation designed to protect them. The pattern of disenfranchisement identified in this case study and the ways in which Native Americans were excluded in the process is a complex model dependent upon several key factors such as 1) valuable natural resources not held in fee-simple title, 2) collusion between governmental politics and corporate greed, and 3) an at-risk population with possessory interest in the land. The fact that the Indian Territory was comprised of vast tracks of reservation land was seen as a valuable 19th century conquest not unlike that of the Columbian conquest of the late 1490s. Until these lands were owned in fee-simple title, they were vulnerable to the predations of greedy land speculators that had powerful congressional backing. However, even more significant to this process was the conflation of governmental and commercial financial interests.

To U. S. government financial interests, the transformation from territories into states was a promising avenue to both fill the treasury and increase the tax base. The cooperation of large commercial interests such as that presented by the railroads allowed for the sort of collusion that provided governmental favors in return for the secret insider-

trading by wealthy congressmen that was eventually exposed during the *Crédit Mobilier* fraud scheme. In order to keep the ball rolling on the land acquisition front required the cooperation of Congress and the courts—often with Congress putting forth a plan that would be nullified by the courts but not before the courts showed Congress future avenues of approach. Shifting federal case law of the period only served to redefine governmental responsibilities—from that of a protector and guardian to eventually an exploitative relationship with Native people. This unfortunate redefinition of the government-tribal framework effectively cleared the way for private enterprise to step in and for nearly unregulated exploitation of natural resources and land. At the conclusion of this process, regulations of the era had already excluded Native participation and rendered any future consultation or discussion meaningless and in vain.

For most Native Americans, U. S. citizenship would not be granted for another 25 years. But since that time, Native people have continually sought to have a voice in land-based issues and have made great progress toward establishing rights to lands both in the courts and through legislation. However, recent events in the U. S. such as the discovery of valuable copper ore on Apache traditional-use lands in Arizona have again brought these issues to the forefront. In particular, Oak Flat, north of Phoenix, Arizona, is a sacred site and traditional-use area to the San Carlos Apache and other Native groups that is now under attack from corporate interests. Although this area has been used by Native groups for centuries as a traditional-use area, this land is under the control of the U. S. Forest Service and title to these lands is not held by the San Carlos Apache.

In December 2014, Congress approved a land swap deal with the foreign-based corporation Resolution Copper. This land holds one of the largest copper deposits in the

world. The land swap deal with Resolution Copper was attached as a rider to a critical U. S. defense spending bill virtually guaranteeing the bill's passage and would allow the destruction of this site through the mining process. "Although Native Americans have been guaranteed the protection of their sacred sites for decades through the 1978 American Indian Religious Freedom Act, opponents say the sale of Oak Flat tramples over that law and sets a precedent for Congress to let big business undermine Native rights to land and worship" say journalists NoiseCat and Gomez (2015). Arizona Representative Raúl Grijalva (D) agrees that this is an important case. "This sets a precedent for other parts of Indian Country. . . This is a violation of sacred sites and a violation of trust responsibility, and continues a historic pattern of neglecting and overlooking and ignoring the rights of Native people across this country" (NoiseCat and Gomez 2015).

The San Carlos Apache and other Native Nations are currently taking their fight to Washington, D.C. to protect this ancient sacred site. It is too early to tell what role Indigenous Cartography will play in this specific issue. But what is clear is that the pattern of congressional bills linked to corporate enrichment is well-ingrained in American history and still undermines Native land rights today.

The next section of this dissertation will examine current events in Canada to see the ways in which some First Nations in British Columbia have sought to take control over their lands and their heritage via their participation in what I call Indigenous Cartography. Of particular interest will be the ways in which these First Nations have sought to preserve much more than just access to lands but also ways in which the

Indigenous cartographic experience has helped them reconnect to communities, traditions and how this process can help them secure their futures as Indigenous peoples.

FIRST NATIONS CASE STUDY: INTRODUCTION

Designing a Best Practices Model

Designing a “Best Practices Model” can be somewhat of a misnomer which mistakes a model as a simplified series of steps that results in a particular product that anyone can use. The underlying assumption is that it is akin to an approved “recipe” that one can follow and that guarantees a successful outcome. Therefore, it is necessary to unpack this idea of what a best practices model is and what it is not. In the land use and occupancy mapping arena, it is perhaps best understood as a particular methodology or set of methodologies that must be well-thought out, planned, and executed with community input at all phases. The overall goal is to first design a methodology informed by Indigenous people that sets limits, establishes ethical criteria, and then seeks particular outcomes before the data collection and geospatial processes can begin. For the purposes of this dissertation, it is premature to suggest a Best Practices Model that can be readily used in an “off the shelf” manner. Because a model cannot be designed without input from a specific tribal community and designed with a specific set of Indigenous values and goals, this dissertation can only suggest import criteria for examination when that process commences. The process of designing a Best Practices Model is best left as a separate project incorporating adequate consultation with a particular community and designed as a community-based project.

It is important to note that the methodologies used will need to be tailored to each case while fully acknowledging the political limitations and ramifications present in each Indigenous and colonial governmental system. Tobias wisely counsels that “use-and-

occupancy mapping is illegal in some countries because governments fear its potency” (2009:12) and also that some Indigenous communities have greater access to funding and maps than others do. Specifically, Tobias notes that “North Americans have access to off-the-shelf base maps that are superior to anything available in many countries in South America, Africa or Asia” (Ibid.). Therefore, the challenge is to design a model that can be easily adaptable to nearly any set of circumstances or political system.

First, it is very important to understand that designing the methodology must come first. Geospatial technology relies on datasets, not the concerns of Indigenous people. This means that the computer-driven geospatial processing takes place after the information is gathered, limits are established, ethics and misuse limitations have been fully considered and the final product has already been decided upon. Therefore, the most important step of Indigenous cartography is to design an Indigenous-specific methodology. It must be the methodology that controls and drives the technology rather than the other way around. With the advent of “plug and play” technologies and readily available free web-based mapping outlets such as Google Earth, there is a tendency to just upload a dataset so anyone can produce a map. However, Indigenous-created datasets are precious knowledge that can ultimately be used to harm or promote Indigenous interests. The criteria for examination that I have described in this dissertation project places Indigenous people at the beginning, middle, and end of the mapping process.

Benefits of an Indigenous-Centered Model

As stated previously, many Native North American tribal entities already utilize geospatial technology for the more practical aspects of land management, endangered

species habitat management, and to control tribal infrastructure. However, researchers who have worked alongside Canadian First Nations during Indigenous-directed mapping projects have remarked that there are additional benefits to involving Indigenous peoples at every stage of the process and limiting the involvement of outsiders.

Communities are left with increased administrative and technical capacity.

Aboriginal governments reap future benefits because members' willingness to participate in later studies increases. People are left with an enhanced awareness of their connection to land. Individuals acquire a newfound sense that their activities are part of a larger picture involving others, thereby strengthening community cohesion. Young and old share experiences and knowledge, renewing inter-generational bonds. Elders from different villages are often brought together, which strengthens connections between communities. Participants develop heightened understanding about rights denied and a desire to get involved in making changes. People's pride in their cultural heritage is reinvigorated. (Tobias 2009:12).

This praxis which I call "Radical Cartography" takes mapmaking from the geospatial technology of cartography into the realm of community activism, Indigenous advocacy, and community-building.

To further illustrate this point, British anthropologist Hugh Brody, longtime advocate of Canadian Indigenous rights and author of *Indians on Skid Row* was so moved by the aftereffects of the first ever map-biography survey that he resigned his position in the Canadian Civil Service in order to devote the rest of his academic career to promoting Canadian Indigenous rights in mapping and film.

How excited and important it was for them to be celebrating their knowledge . . .

The project also included taking composite maps back to the community and having elders and active land users review them. These gatherings were astonishingly energized and excited. Not only because people saw how much they could make their lives visible, and how much the map could achieve as a political and lobbying tool. But also because they saw how individual map biographies fitted together. They got a sense of their overall system. . . And between them the composite represented their overall relationship to their overall territory. People were empowered . . . by this experience. . . For many groups the process has enormous potential and very, very powerful consequences. (Tobias 2009: 12)

In Brody's case, what he saw was community empowerment through the process of creating the datasets and controlling the outcome. This is a process that is powerful, restorative, and energizing for Indigenous communities. When outsiders control the process, collect the datasets and produce the final product, they are robbing Indigenous communities of their power and their birthrights to the land.

Overall, the community benefits of an Indigenous-led geospatial project are easy to understand. The more complex mapping issues are at the heart of some of the most intractable issues facing Indigenous communities today—that is, the staggering loss of ancestral heritage lands over the past centuries and the urge to reconnect to these lands. As discussed previously in this dissertation, access to ancestral lands is crucial to the continuation of a distinct and ever-evolving Indigenous identity. In Canada and the United States, Native people share a legacy of British colonial land policy and its continuation in the policies and laws that govern these lands today. However, in the past

decade and a half, some inroads have been made regarding the creation of these Native community-produced maps for the reassertions of treaty rights and in land claims cases—particularly in British Columbia. The overall goal of this dissertation is to examine some of these efforts as a case study that might better inform Native Americans in the U.S. and suggest directions that might prove fruitful to their efforts under a U. S. federal Indian law and policy system.

This dissertation was originally focused on examining several First Nations' experiences with Indigenous cartography and focusing on lessons learned from roles that it played in Canada's First Nations treaty negotiation process. However, further research into the status of the Canadian and First Nations' recent histories revealed a treaty process that is currently stalled—fatally flawed with most treaty negotiations coming to a standstill after the *Delgamuukw* case decision in 1997. Although many First Nations, particularly in British Columbia, have engaged in Indigenous cartography, the processes and outcomes are nowhere nearly as detailed and readily available as that of the Tsleil-Waututh Nation. The publication of *Living Proof: The Essential Data-Collection Guide for Indigenous Use-and-Occupancy Map Surveys* by Terry N. Tobias in 2009 details for the first time the extensive methodology developed for the Tsleil-Waututh land use-and-occupancy project. Tobias delves deeply into concerns of the Tsleil-Waututh Nation and chronicles their journey through this process as well as distills the foundational principles on which their mapping program was created. There is no other First Nations case study that has published so much breadth and depth on the details of this process. Combined with news releases on current events that came about as a result of their mapping endeavor and information obtained from the Tsleil-Waututh Nation and the British

Columbia Treaty Commission, this compendium of information on a First Nations mapping process has provided more than just a case study. It has provided a history of the challenges and successes of an important facet of assertion of Indigenous rights in a hostile environment and how Indigenous cartography practiced by a single First Nation has influenced treaty negotiations of an entire region. The influence of the Tsleil-Waututh Nation's cartographic program reaches well into treaty and land concerns here in the U. S. and in the larger Indigenous world community. Therefore, the evidence presented for the First Nations case study will focus on a single, yet extensive and well documented program of Indigenous cartography: the Tsleil-Waututh Nation.

CASE STUDY: TSLEIL-WAUTUTH NATION OF SOUTHWEST BRITISH
COLUMBIA

Background

The Tsleil-Waututh Nation inhabits a homeland that encompasses over 1,800 square kilometers in southwest British Columbia and like many First Nations has endured centuries of eroding land rights under colonial rule.

The colonial policies of British Columbia and Canada imposed incalculable hardship on us. We survived this cataclysm in many creative and persistent ways. Religious and cultural practices outlawed by Canada between 1884 and 1951 were actively maintained underground. As well, an annual series of summer war canoe races held between neighbouring Coast Salish communities allowed complex intertribal social and political relationships to be maintained. We suffered, but we also resisted. We did everything that we had to do to survive. (Tobias 2009: 16).

By 1998 the Tsleil-Waututh Nation completed two important interconnected projects that would eventually lead them into the realm of Indigenous cartography: land use-and occupancy studies and bioregional mapping of their lands to relay information of their culture and territory to Tsleil-Waututh tribal members. (Ibid.).

Like many other First Nations and Native Nations, existing Tsleil-Waututh cultural and historical knowledge about themselves largely came from outside anthropologists. As the Tsleil-Waututh Nation began to lose its elders, they recognized that they were also losing important cultural, historical and land-use information. “As a

result, among many research needs identified as important by Tsleil-Waututh community members and leaders, the initiation of a comprehensive use-and-occupancy survey was assigned the highest priority” (Tobias 2009: 16). However, tribal members discovered that funding such a study was an expensive endeavor. After much debate, the Tsleil-Waututh Nation eventually accepted Canadian government funding and with it the commitment to share their information with the British Columbia Ministry of Forests. The community decided that the information being lost with the passing of each tribal elder was of the highest concern. The Tsleil-Waututh Nation received funding in excess of \$280,000. “The grant award was by far the largest single amount of funding ever extended to the Tsleil-Waututh Nation for cultural research” (Tobias 2009: 17).

Along with grant funding, the Ministry of Forests supplied the Nation with a methodology guide to use for their research plan. However, the Tsleil-Waututh discarded that guide and instead developed their own community-based methodology. From the beginning, the Tsleil-Waututh were concerned about the security of their data and how to protect sensitive cultural information. “This project mattered in a way that was very different from any type of research project administered by, and for the use of, outsiders” (Tobias 2009: 17). The Nation was especially concerned about addressing the following major concerns: “how to decide what use-and-occupancy activities to survey, how to create a data-collection manual, how to prepare map biographies, how to maintain strict confidentiality and how to keep immaculately organized records in a manner that would protect sensitive cultural information ‘forever’” (Ibid.). The Nation then procured the services of Terry Tobias, a principal of a private consulting firm with over 28 years of experience in Indigenous mapping surveys.

The Project

From the beginning, the Tsleil-Waututh Nation was concerned with developing an appropriate methodology to guide the project from start to finish. The focus on the technology was not developed until the Nation could decide what information to collect and how to preserve and present it. Tribal members were trained in marking locations on acetate sheet maps, interviewing, transcription and research. Tribal members combed through archives and vetted a wide selection of outsider-generated information about the Tsleil-Waututh. Then tribal members decided what information was worthy for inclusion into the project and what should be rejected. In addition to this large information gathering exercise, they also developed a Tsleil-Waututh ethnobotany study and a history of colonial encroachment was prepared. “To ensure that this material could be analyzed in the most efficient manner possible, the entire annotated bibliography was entered into a database format with extensive cross-referencing and sorting capabilities” (Tobias 2009: 17).

Once the methodology was in place and the information was gathered, all the data was integrated into reports and maps. Extensive documentation was collected describing the process and this documentation along with the final reports and maps was presented to Tsleil-Waututh community members. An edited version was also supplied to the Ministry of Forests in order to fulfill contract obligations for the grant funding. The Tsleil-Waututh community was impressed with the results and decided to go beyond the scope of this original project and produce more in-depth research that included more biophysical and cultural information in an easy to understand guide for the tribal community. “This ‘eco-cultural’ guide was prepared with the assistance of archaeologist

Diana Alexander, and remains in wide use as the single broadest compendium of information on Tsleil-Waututh territory and culture” (Tobias 2009: 17). The extension of the original project resulted in a research project with 40 maps and information on how this community sees themselves as part of the tribe’s past and future. Next, the Tsleil-Waututh community decided to use this information as a treaty negotiation tool, public education resource and for cultural preservation needs.

It was immediately apparent that the visual power held by this set of original bioregional map images would work powerfully to tell the Tsleil-Waututh story. People were drawn to the maps, touching the photos of relatives and tracing the path of ancient trails. Although most Tsleil-Waututh members knew the stories that the maps told, this was the first time this knowledge had been represented alongside technical information and placed in a visual format for wider sharing and transparent use. (Tobias 2009:19)

As early as 1994 the Tsleil-Waututh Nation had entered into the treaty negotiation process with the British Columbia Treaty Commission (BCTC). They filed a statement of intent in 1994, filed readiness documents in 1995, signed procedural agreements in 1996 and signed their framework agreement in March of 1997. But after that, the process broke down and no further documents were filed with the BCTC. By late 1997, the *Delgamuukw* decision had effectively stalled out the treaty negotiation process. The *Delgamuukw* decision effectively stated that First Nations do have rights to land (via Aboriginal Title) but made no statement as to where it exists. “The Supreme Court of Canada decision in the *Delgamuukw* case in late 1997 was widely seen as a turning point

for treaty negotiations” (BC Treaty Commission n.d.). Until there is a further decision by the courts or through a treaty process, many questions will remain unanswered.

With a stalled treaty negotiation process, the Tsleil-Waututh Nation began to use its now extensive cartographic information to create a tribal Land and Resource Development policy that could help them more easily consult with other governments and help them to better manage lands and resources within their territory (Tsleil-Waututh Nation 2009).

The resulting policy, originally published in January of 2009 has the following objectives:

1. To provide a logical, step-by-step guideline for appropriate consultation with Tsleil-Waututh.
2. To outline the principles and processes related to land and resource stewardship that we believe will protect our precious resources for generations to come.
3. To implement a fee for service structure that will recover Tsleil-Waututh costs associated with participation in consultation activities initiated by others.

(Tsleil-Waututh Nation 2009)

The Tsleil-Waututh Nation commented on this evolution of what started out as a treaty negotiation tool and became so much more.

The Tsleil-Waututh Nation’s Mapping and GIS (Geographic Information Systems) capabilities are the cornerstone of our ability to record and utilize the information resulting from our traditional use studies. Though the advent of the Mapping and GIS offices was due to the treaty process, its contribution to our community has gone far beyond the drawing of lines on a map. The Mapping and

GIS office has brought a wealth of technical expertise to the nation, helps to inform the bioregional planning process, and to support community and economic developments. The visual representations we are capable of creating help to tell our story. (Tsleil-Waututh Nation 2015)

More recently, the Tsleil-Waututh Nation has used the information it produced during the treaty process to fight for traditional land preservation in a way that is unique in the modern era but supports traditional Indigenous land management. Oil giant Kinder Morgan proposed an expansion of natural resource extraction in the form of hydraulic fracturing for oil (fracking) by way of an extension of an oil pipeline across Tsleil-Waututh lands. This proposal was met with stern resistance by the tribe. The Tsleil-Waututh Nation mounted a legal challenge against the National Energy Board and its failure to adequately consult with the tribe on issues impacting their traditional territory. The proposed pipeline expansion would bring temporary jobs to the area but would also significantly increase the amount of fuel tanker traffic through the Salish Sea and into Tsleil-Waututh territory. The Tsleil-Waututh Nation also voiced its concerns about the hazards of oil spills and environmental degradation (Ball 2014a).

While the legal case winds through the courts, the Tsleil-Waututh Nation has reached out to other First Nations groups with traditional territories in the area. “As the National Energy Board continues to hear oral presentations about the proposed expansion of Kinder Morgan’s TransMountain pipeline to Burnaby, B.C., First Nations on all sides of the Salish Sea are pressing forward with an intertribal treaty to protect their waters from oil tankers” (Ball 2014b). By circumventing the broken Canadian treaty process and using the land use-and-occupancy data created by the Tsleil-Waututh Nation, these First

Nations—Tsleil-Waututh Nation, Musqueam Nation, Squamish, Sto:lo, Kwantlen, Tulalip, Sts'ailes, Xaxli'p and St'at'imc Nations of British Columbia and the Lummi Nation in Washington State—hope to come together to protect the Salish Sea in a uniquely Indigenous way. “The fact that the treaty is based on Indigenous law, not the Canadian legal system, is crucial as pipeline opponents turn to the courts to assert their rights and title. ‘We’ve been governing ourselves since time out of mind . . . We’ve been governing our lands, we have our laws around our lands, we’ve been protecting our lands. That’s our case’” (Ball 2014b). As of the date of this dissertation, the Canadian courts have not yet reached a decision. However, by intertribal treaty, these First Nations remain staunch protectors of the Salish Sea and have so far kept Kinder Morgan’s oil tankers out of First Nations waters.

Emerging Best Practices

The benefits of an Indigenous cartographic praxis to the Tsleil-Waututh Nation are numerous and the outcomes have been significant. However, in terms of detailing best practices that have emerged from this process, it is necessary to first look at the methodological steps engaged throughout the process. Terry Tobias, the seasoned researcher who was contracted by the Tsleil-Waututh Nation to develop an effective Indigenous methodology breaks these practices down into six different sections touching on areas such as deciding who will perform the research, deciding on an appropriate scope of the project and deciding who would be involved in the process from start to finish. Tobias details the strengths of this project as tied to outcomes grounded in Tsleil-Waututh community values which are summarized below:

1. **Community-based.** The great majority of the research required to complete the Use and Occupancy Project was carried out by Tsleil-Waututh community members. There was a tremendous level of pride over the fact that such complex social research was so artfully carried out by skilled community members.
2. **Comprehensive.** The Use and Occupancy Project research team was highly successful in obtaining the participation of Tsleil-Waututh community members. The fact that 49 per cent of all adult community members were interviewed, including 62 per cent of all elders, is testimony to the generally high level of importance placed on participation.
3. **Informed by Experts.** When the project began there were no useful textbooks available that explained how to complete use-and-occupancy research. It was thus considered essential that experts in several fields related to use-and-occupancy research be physically brought in as advisers and trainers.
4. **Informed by Other First Nations.** Throughout the project communication was maintained with other First Nations who were also involved in land use-and-occupancy research. It was comforting to be able to pose both technical and philosophical questions to members of other community research teams.
5. **Methodologically Sound.** Every major step in the Use and Occupancy Project was aided by a development of clear, written research methodology. Interview scripts, confidentiality forms, transcription conventions, digital map database configurations, and stages in digital map production processes were all clearly delineated and strictly followed.

6. **Trust-based.** A careful strategy for the representation and presentation of use- and occupancy data was devised. It allowed the information to be both protected and shared.

(Tobias 2009: 18)

Although there were many tangible benefits associated with this project, Tobias also reflects on the many intangible benefits that emerged from this research. Aside from the obvious skills acquisition and rise in community standing with outside groups, there is a sense that presenting research such as this outside of the community has gone far to destroy negative stereotypes and educate outsiders about the rich culture and heritage of the Tsleil-Waututh Nation. “It is a sad fact that representatives of many of these interests have viewed First Nations as being somehow quaint victims of colonization. . . To be able to display maps that demonstrated technical competence as well as ongoing complex use and occupancy of a large physical territory has very much worked to destroy outdated stereotypes” (Ibid.).

The Future

When the Tsleil-Waututh Nation began this journey into Indigenous cartography in 1994, the primary concern was the preservation of traditional knowledge and passing that knowledge along to future generations. However it quickly grew to encompass a focus on the wider traditional landscape of the Tsleil-Waututh and neighboring First Nations communities, concerns about treaty negotiations and capturing community concerns. Today the Tsleil-Waututh Nation has built a well-developed stewardship role with surrounding First Nations communities, a holistic approach to land and natural

resource management, and are on the leading edge of the fight for Indigenous land-based traditional rights with their engagement in the international intertribal treaty fight to protect the Salish Sea. Their influence can also be seen as part of a growing empowerment of Indigenous peoples in other international intertribal treaties developed among other Indigenous groups for the protection of bison and salmon. By successfully building and utilizing an Indigenous cartographic praxis, the Tsleil-Waututh Nation is able to engage with colonial governments and business interests on a more even playing field and promote a 21st century Indigenous outlook to land and resource management.

TRANSFERRABILITY OF FIRST NATIONS CARTOGRAPHIC PRAXIS TO
NATIVE NATIONS IN THE UNITED STATES

Cartographic Paradigm Assessment

As assessment of the overall praxis of Indigenous cartography as it developed with the Tsleil-Waututh Nation in British Columbia shows a general trend from a project first conceived to meet a specific local need and then transformed over the years to become a holistic mapping program with an international component. What had at first been a local effort to preserve the traditional knowledge of tribal elders has now become a well-respected sophisticated cartographic program with international treaty aspects. In the intervening years, the Tsleil-Waututh Nation endeavored to utilize their mapping program to promote treaty rights to traditional lands. But when the Canadian-First Nations treaty process hit the wall with the *Delgamuukw* case in 1997, the Tsleil-Waututh Nation fell back on Indigenous principles of land stewardship and forged ahead with both their mapping program and land preservation activities with neighboring First Nations.

The Tsleil-Waututh Nation is well-versed in the law and policy implications of Indigenous cartography and practices it from a methodology that is distinctly Indigenous and one which serves the needs of First Nations and operates outside of Canada's federal law and policy framework. It exists within or without a colonial land policy and can stand alone to promote Indigenous interests. This is an important lesson to bear in mind when constructing an Indigenous mapping program and raises several critical questions. What framework should an Indigenous cartographic praxis exist within? Can it be designed to stand alone and promote an Indigenous paradigm or does it only exist to serve Indigenous

peoples from within a colonial law and policy framework? More specifically in the United States, should a Native cartographic praxis be built on a framework of Indigenous law, or should it be built to operate in a federal Indian law and policy framework? Questions such as these are at the crux of discussions of Native sovereignty in the U. S. today. In the realm of American Indian or Native American studies, often today this discussion centers around which paradigm will best serve Native people in the 21st century and beyond—a focus on tribal sovereignty in a U. S. federal law and policy system, or a paradigm of international Indigenous sovereignty with a focus on Indigenous law as promoted by the United Nations? Both approaches have advantages and disadvantages but it is essential that this issue be addressed in the early stages of design of any Indigenous cartographic program.

Scope and Reach

Just as the Tseil-Waututh mapping program began as a simple cultural preservation exercise, every Indigenous cartographic program will likely begin with a specific need in mind. As previously discussed, the state of tribal mapping programs in the U. S. is widely varied both in scope and reach. Some focus on issues of natural resource management or endangered species habitats. Others have focused on using mapping for tribal infrastructure problems and assessments. The national nonprofit organization TribalGIS.com functions as a hub for Native Nations and assists tribes with various aspects of mapping. This agency hones in on field-specific aspects of GIS such as hydrology or farming, and is built to assist tribal GIS specialists with technical aspects such as spatial analysis and cartographic tools. Videos produced by this organization as

late as December 2014 stress that tribes in the U. S. are just getting started with GIS and rarely focus on paradigmatic or law and policy concerns (TribalGIS.com 2015).

No mapping program identified in this project had the far-reaching scope of the Tsleil-Waututh program and only a few authors (Goes In Center 2015) have referenced mapping from any specific tribal paradigm. It appears that Native Nations in the U. S. have taken on the technological challenges of GIS without circumscribing any particular methodological approach and tribal mapping programs in the U. S. are virtually devoid of a tribally-specific theoretically-based approach. It also appears from a search of the available literature that tribal mapping programs in the U. S. are largely piecemeal programs with mapping performed for specific projects and not as part of a greater holistic commitment to mapping from a unique tribal perspective. This can be best characterized as a weak approach to Indigenous cartography. As seen in the Tsleil-Waututh approach, a strong program is bolstered by a strong Indigenous methodology. One important facet of the Tsleil-Waututh program was its ability to easily accommodate much larger or smaller problems with the same methodology and paradigm. This was precisely because an Indigenous methodology guided the work. A tribal GIS program without a tribally specific methodology is unlikely to stand the test of time since each smaller project is not part of an interrelated whole. This aspect of Indigenous cartography is absent from many tribal GIS program in the U. S.. But this is not an unsolvable situation. Many tribes in the U. S. already possess the skills and training to redefine the framework and create a tribally-specific methodological plan to guide their GIS programs. “This kind of mapping is one of the most important undertakings a community can take on. Because what we’re talking about is a knowledge—a collective memory of a

people—that with each passing year is being lost as we lose our elders” (Tobias 2009: 410).

AN EMERGING BEST PRACTICES MODEL FOR U. S. INDIGENOUS CARTOGRAPHIC PRAXIS

Law and policy frameworks

Although Native Nations in the United States have similar federal Indian law and policy aspects as First Nations in Canada, there are many distinct differences in case law, treaty rights and aboriginal title issues. My recommendation for the first, and perhaps most important, aspect of building an Indigenous cartographic program in the U. S. is a conscious and thoughtful decision about frameworks. Does it promote the tribe's best interest to design a cartographic program from an Indigenous law perspective under the paradigm of international law and the United Nations or would the tribe's best interests be served building a cartographic program within the framework of recognized U. S. federal Indian law and policy (i.e. Marshall Trilogy)? If a cartographic program should be built using Indigenous law (tribal law), which aspects could be modified to interface with the U. S. federal Indian law and policy framework as needed? This decision is perhaps the most important and time consuming one as it will require extensive communication and evaluation from tribal law experts, tribal officials and tribal citizens as to the benefits and pitfalls of each course of action. This decision could also open a dialogue between tribal members and reaffirm tribal sovereignty in a new paradigmatic approach to problem solving, justice, peacemaking and other important avenues of sovereignty.

Values-driven technology

Once a decision has been reached on frameworks and paradigms, the second step should be the design of a community-based methodological approach. The Tsleil-

Waututh Nation spent an enormous amount of time designing a tribally-specific community-based methodology which reflected tribal values and imperatives. The Tsleil-Waututh approach was first and foremost a community-based approach. The data collected came from tribal members and the research project was carried out by tribal members. Tobias reported a tremendous level of community pride in the end result because it was conceptualized and carried out using time-tested community values and the valuable skills of community members. The Tsleil-Waututh Nation took an inordinate amount of time to ensure that their methodological approach was sound and conformed to community values.

After examining the cartographic praxis of the Tsleil-Waututh Nation and comparing it to the known mapping programs of many U. S. Native Nations, the following key concepts have emerged. First and foremost, it is important to recognize that although the technology of tribal GIS programs is usually the first aspect approached in the United States, it should rightfully be placed last—or nearly last. Designing tribally-specific, values-driven theoretical and methodological approaches should be the main focus with much of the funding and time allotment dedicated to ensuring an enduring approach. In short, the technology should accommodate the values rather than the other way around. By draping the technology over a well thought out values-driven approach that underscores and illuminates Indigenous law, Native Nations in the U. S. have the capacity to build a Tribal Values Oriented GIS (TVOGIS) rather than accept the much less satisfying approach by implementing an off-the-shelf GIS program. It is important to restate that critics addressing the perceived incompatibility of tribal values and a GIS system which was born out of military technology are correct in asking “If [GIS’s]

ancestry is colonial cartography and the tools it utilizes (aerial and satellite imagery) are rooted in militaristic uses, what, if anything, is the empire mapped by this GIS? (Farman 2010: 876). GIS technology is driven by mathematical solutions and utilizes graph theory to locate places on a grid. The science behind GIS is devoid of any ethical approach. However, once GIS technology is draped over a methodological approach, it is the methods and inherent values that control the GIS—not the other way around.

Experts of Opinion

As pointed out in the Tsleil-Waututh case study, one of the reasons for the great success of their mapping program was that it was community-based. Tobias reflected on the immense satisfaction that this project brought to the community in the form of connections—reconnecting generations, reconnecting community members and kin groups, and reaffirming the Tsleil-Waututh Nation’s connection to neighboring First Nations. It was this larger community base that made decisions on what should be mapped, what were the most important issues to tackle first and how they should proceed. Because the project, from conceptualization to implementation, was informed by insider knowledge, it created a program that was focused on trust-based strategies with research carried out by well-informed community members. Outsiders, such as archaeologist Diana Alexander, were consulted on an as-needed basis. And the wealth of outsider information about the Tsleil-Waututh Nation was vetted for accuracy by this insider community before it was incorporated into the larger database. Then again, at the end of the project when the Nation was required to provide a copy of this data to the Canadian government in the form of a deliverable as part of the funding requirements, it was this

same insider community who edited, redacted and vetted the final report that was turned over to the Ministry of Forests. This process was very satisfying for the Tsleil-Waututh Nation and no doubt could also be another way that Native Nations in the U. S. could assert sovereignty while involving knowledgeable community members.

Special Issue for U. S. Native Nations: Sacred Site Confidentiality and the Freedom of Information Act

One issue that has continued to plague Native Nations in the United States has been the issue of confidentiality surrounding sacred sites and sacred knowledge. Many tribes such as the Havasupai in Arizona believe that disclosing information about sacred sites to outsiders is inconsistent with their spiritual beliefs. “The Havasupai are especially secretive about sacred sites because if uninitiated people visit certain sites, they ‘violate the universe,’ which may bring ‘calamity’ to the tribe” (Plaut 2009: 138). Other Native Nations worry that once the location of a sacred site becomes known, the area will be flooded with outsiders, new-age religious groups, and others intruding on and despoiling the sacredness of an area. Therefore, confidentiality of site locations and the information about the nature of these special areas becomes a primary concern.

However, a federal law known as the Freedom of Information Act (FOIA) (5 U.S.C. §552) requires disclosure of information collected by U. S. Government agencies to the public unless that disclosure is explicitly prohibited by statute. Laws such as the Archaeological Resources Protection Act (ARPA) specifically prohibit disclosure of archaeological site locations under FOIA and are therefore exempted from a request under FOIA. And although some sacred sites’ locations may indeed receive FOIA

protection because they are at the same time archaeological sites, what protects other sacred sites that may not also be archaeological sites? The key to FOIA disclosure turns on the premise that the government must already possess the information requested under FOIA. It does not require the government to go out and obtain that information specifically for the purpose of a FOIA request. Therefore, Native Nations must be especially careful what information is shared with the U. S. Government if they wish to avoid a disclosure of that information to the public.

One sticking point for tribes has been that in an effort to provide protection to sacred sites from adverse impacts in mining, road construction or other land-disturbing activities, the consultation process requires that tribes disclose information on the sacred site in order for it to be considered for protection. Once disclosed, the information becomes at risk for further disclosure under FOIA. If tribes don't disclose the information, their sacred sites could be at risk for destruction. It is a Catch-22. Under our current understanding (Plaut 2009), to block disclosure under FOIA, there must be an explicit statutory exemption. Recent policy statements that are currently in draft form are attempting to rectify this situation. However, the terms of such policy statements may not completely satisfy tribal needs for confidentiality.

The Advisory Council on Historic Preservation (ACHP) is a federal agency that is the primary advisor to the President and Congress on national historic preservation policy. It is the only entity with the legal responsibility to encourage federal agencies to factor historic preservation, and thus sacred sites, into federal project requirements. In September of 2014, the ACHP promulgated a "Draft Policy Statement on Confidentiality of Indian Sacred Sites." This draft policy states that the ACHP "shall respect tribal

desires that information about such locations [sacred sites] be kept confidential . . . [and will] not be divulged” (Advisory Council on Historic Preservation 2014). This draft policy states that it will recognize tribal ownership of such information and promises to “provide Indian sacred sites the highest possible level of protection” (Advisory Council on Historic Preservation 2014) and invokes Executive Order 13007 “in concert with other pertinent laws, regulations, policies, and guidance” (Advisory Council on Historic Preservation 2014). But does this policy statement actually provide the kind of protection for sacred site information that can defeat disclosure under FOIA?

This draft policy defers to the guidance on Section 304 of the National Historic Preservation Act of 1966 (NHPA) and Section 9 of the ARPA. However, both sections require that in order for a sacred site location to be withheld from the public, it must be either a site already on the National Register of Historic Places or be eligible for the National Register. In order for eligibility to be determined, information must be gathered and a determination made to see if it can be found “eligible” under one of the four categories of Section 106 of the NHPA. However, in order for this determination to be made, the site’s location must be disclosed to federal entities and tribes may be required to provide sacred information. If a determination is made by the federal government that the site is not eligible for inclusion on the National Register, no protection under Section 304 of the NHPA or Section 9 of ARPA exists and thus, location confidentiality from ACHP under FOIA cannot exist. Therefore, once a tribe has disclosed sacred site information, unless it results in an “eligible” determination, the site location is at risk, not to mention the other aspects of the site divulged to federal officials.

The Draft Statement warns that in order to make the eligibility determination, tribes must disclose information but if the site is ruled “ineligible,” their site information as well as other site characteristics is also at risk. However, it also states that “the 2008 Farm Bill provides specific authority to the USDA Forest Service in Section 3056 of the Cultural and Heritage Cooperation Authority (25 U.S.C. § 3056) to protect information from release under the Freedom of Information Act. However, once again, this seems to be a false promise to tribes. Section 3056 of the Cultural and Heritage Cooperation Authority only provides confidentiality for information obtained by tribes when that information is disclosed to the U. S. Forest Service. Disclosure to any other federal agency does not result in protection from disclosure under FOIA.

The issue of tribal confidentiality with respect to government agencies under FOIA has been tested in the courts and has been found to have no basis for exemption. In the U. S. Supreme Court case of *U.S. Department of the Interior v. Klamath Water Users Protective Association* [(99-1871) 532 U.S. 1 (2001) 189 F.3d 1034], Justice Souter, in delivering a unanimous opinion for the Court stated that “This boils down to requesting that the Court read an ‘Indian trust’ exemption into the statute. There is simply no support for that exemption in the statutory text, which must be read strictly to serve FOIA’s mandate of broad disclosure.” In the U. S., the Supreme Court has made it clear—there is no exemption from government disclosure under FOIA even for tribal confidentiality. The only way for tribes to avoid FOIA disclosure is to only share information that can be protected by an explicit statutory exemption (archaeological site location information under ARPA, for instance), by not sharing that information with any government agency, and by not sharing that information with anyone else who might then share it with a

government agency. Therefore, for purposes of mapping of sacred or sensitive sites, tribes should not allow outside entities access to this privileged information. Contracts with outside agencies to provide mapping services, for example, could result in a release of sensitive information if those outside agencies are sponsored by federal funds and are required to provide mapping deliverables in the form of reports to the federal government.

HOLISTIC INDIGNEOUS CARTOGRAPHIC PRAXIS

Today, geospatial technologies, Geographic Information Systems and the endless applications of the data derived from mapping are sexy science. Geographic information has become so embedded into our cultures, our cell phones and our marketing in the past few years that there is now the expectation that all geospatial data should be available to everyone. The commodification and commercialization of geospatial data and its potential for misuse are at all-time highs. Tribal geospatial data is especially at risk for exploitation for financial gain due to the perceived ownership rights that come with this ownership of data from potential looters, vandals, new age religious practitioners and many others. We have entered a new era of commodification and exploitation of Native culture due to technological advances, sky-high black market prices for anything of Native origin and television programs promoting nothing less than vandalism and looting of archaeological sites. We are at an important crossroads with respect to control of geospatial data.

A decade ago, academics were writing about the “digital divide” that effectively shut out Native Nations from participation in GIS. However, many tribes have now instituted geospatial programs in-house to take care of the day-to-day activities of meeting tribal mapping needs. The fact that many tribes still contract outside agencies to perform the most sensitive mapping—cultural resources—speaks to a lack of an overall methodology rooted in tribally-specific community values. There are many lessons still to be learned from implementation of Indigenous cartographic programs. However, time is growing short for tribes in the U. S. to implement safeguards for their sacred site information. GIS drones have the capability to be piloted and controlled from outside

reservation boundaries for purposes of mapping, photographing and georeferencing significant sacred sites.

It is time for Native Nations in the U. S. to begin focusing on a holistic geospatial practice. It is time to focus on developing overall community-based and values-driven geospatial methodologies that can guide Native Nations in telling their stories to their communities, to their descendants and to outside groups. There are many challenges to consider when building an Indigenous cartographic praxis. Mapping, and the control of the information produced, represents power. My challenge to Native Nations in the U. S. is to seize this power as your inherent right to tell your stories, embrace an Indigenous way of reconnecting the past and the future, and aspire to work not from a framework that is merely acceptable, but build and embrace an Indigenous framework that you create. Do it for your ancestors. Do it for your grandchildren. Do it for the seven generations who are yet to come so they will know who they are as Native people.

BIBLIOGRAPHY

Access Fund v. United States Department of Agriculture; United States Forest Service; Mike Johanns

No. 05-15585, 499 F.3d 1036; 2007 U.S. App. LEXIS 20449; 37 ELR 20223

Acoma, Pueblo of, with Hopi Tribe, Pueblo of Laguna, Navajo Nation, and Pueblo of Zuni

2009 Mount Taylor Cultural Property. Traditional Cultural Properties Nomination, Submitted to the New Mexico Cultural Properties Review Committee for Listing on the State Register of Cultural Properties on June 5, 2009, by Chestnut Law Offices, Albuquerque. Ms. on file, New Mexico Historic Preservation Division, Office of Cultural Affairs, Santa Fe. Available on-line: <http://www.nmhistoricpreservation.org/featured/mt.-taylor-register-listing.html>, accessed March 13, 2012.

Adams, Charles Jr.

1885 *Correspondence from Charles Adams, Jr., President, Union Pacific Railroad to Moorfield Storey, February 2, 1885*. Nebraska State Historical Society. Union Pacific Railroad Office of the President, Outgoing Correspondence, Microfilm Vol. 27, Series 2, Roll 23.

Advisory Council on Historic Preservation

2008 National Historic Preservation Act of 1966, As Amended Through 2006 [With Annotations] online at <http://www.achp.gov/docs/nhpa%202008-final.pdf>, accessed December 26, 2011.

2014 Draft Policy Statement on Confidentiality of Indian Sacred Sites. Online at <http://www.achp.gov/docs/sacred-sites-policy-confidentiality-statement.pdf>. Accessed 21 April 2015.

Allen, Paula Gunn

1992 *The Sacred Hoop: Recovering the Feminine in American Indian Traditions*. Boston: Beacon.

1993 *Iyani: It Goes This Way*. In *The Remembered Earth: An Anthology of Contemporary Native American Literature*. Geary Hobson, ed. P. 191. Albuquerque: University of New Mexico Press.

American Indian Religious Freedom Act (Public Law 95-341) 42 U.S.C. 1996 and 1996a

Antiquities Act of 1906 (34 Stat. 225) 16 U.S.C. 431-433

Archaeological Resources Protection Act of 1979 (Public Law 96-95) 16 U.S.C. 470aa-

mm

Ausherman, Larry

2011 Sizing Up Traditional Cultural Property in New Mexico. ACOEL: American College of Environmental Lawyers. <http://www.acoel.org/post/2011/11/28/SIZING-UP-TRADITIONAL-CULTURAL-PROPERTY-IN-NEW-MEXICO.aspx>, Accessed March 23, 2011.

BC Treaty Commission

2014 Why Treaties?: A Legal Perspective. Online at http://www.bctreaty.net/files/pdf_documents/why_treaties.pdf. Accessed 4 January 2015.

Bailey, Kenneth, Richard Beck, Robert Frohn, Dave Pleva, Dave Plumer, Michael Price, Robert Krute, Calvin Ramos and Robert South

2001 Native American Remote Sensing Distance Education Prototype (NARSDEP). *Photogrammetric Engineering & Remote Sensing* 67(2):193 – 197.

Bailey, Kenneth, Robert C. Frohn, Richard A. Beck and Michael W. Price

2001 Remote Sensing Analysis of Wild Rice Production Using Landsat 7 for the Leech Lake Band of Chippewa in Minnesota. *Photogrammetric Engineering & Remote Sensing* 67(2):189 – 192.

Ball, David P.

2014a “Tsleil-Waututh File Lawsuit Against Feds Over Kinder Morgan.” *Windspeaker: Canada’s National Aboriginal News Source*. June 2014, Page 7.

2014b “Intertribal Treaty Gains Momentum to Protect Salish Sea.” *Windspeaker: Canada’s National Aboriginal News Source*. November 2014, Pp. 6, 10.

Bartel-Bouchier, Diane

2013 *Cultural Heritage and the Challenge of Sustainability*. Walnut Creek, CA: Left Coast Press.

Basso, Keith H

1996 *Wisdom Sits in Places*. Albuquerque: University of New Mexico Press.

Bauer, Kenneth

2009 On the Politics and the Possibilities of Participatory Mapping and GIS: Using Spatial Technologies to Study Common Property and Land Use Change Among Pastoralists in Central Tibet. *Cultural Geographies* 16:229-252.

BC Treaty Commission

2014 Why Treaties? A Legal Perspective. Vancouver BC: BC Treaty Commission. Available online at http://www.bctreaty.net/files/pdf_documents/why_treaties.pdf. Accessed 30 September 2014.

- n.d. *A Lay Person's Guide to Delgamuukw*. Online at http://www.bctreaty.net/files_3/pdf_documents/delgamuukw.pdf. Accessed 31 July 2015.
- Beisaw, April M.
2010 Memory, Identity, and NAGPRA in the Northeastern United States. *American Anthropologist* 112(2):244-256.
- Benedict, Cynthia Buttery and Erin Hudson
2008 Mt. Taylor Traditional Cultural Property Determination of Eligibility for the National Register of Historic Places: Mt. Taylor Ranger District, Cibola National Forest, Cibola, McKinley, and Sandoval Counties, New Mexico. <http://www.nmhistoricpreservation.org/documents/cprc/MtTaylorAttachment5.pdf>, accessed March 23, 2012.
- Berkes, Fikret
2008 *Sacred Ecology*. New York: Taylor & Francis Group.
- Bhabha, Homi
1994 *The Location of Culture*. New York: Routledge.
- Billeck, Bill, Jacquetta Swift, John Beaver, Andrew Hunter, T. J. Ferguson
2010 Repatriation at the Smithsonian Institution. *Anthropology News* 51(3):25.
- Biolsi, Thomas
2005 Imagined Geographies: Sovereignty, Indigenous Space, and American Indian Struggle. *American Ethnologist* 32(2):239-259.
- Blaut, James M., David Stea, Christopher Spencer, Mark Blades
2003 Mapping as a Cultural and Cognitive Universal. *Annals of the Association of American Geographers* 93(1):165-185.
- Brant, Beth
1999 The Good Red Road. *In Contemporary Native American Cultural Issues*. Duane Champagne, ed. Pp. 91-101. New York: AltaMira Press.
- Brooks, Robert L.
1997 Compliance, Preservation, and Native American Rights: Resource Management as a Cooperative Venture. *In Native Americans and Archaeologists: Stepping Stones to Common Ground*. Nina Swidler, Kurt E. Dongoske, Roger Anyon and Alan S. Downer, eds. Pp. 207-216. Walnut Creek, CA: Altamira Press.
- Brown, Deidre and George Nicholas
2012 Protecting Indigenous Cultural Property in the Age of Digital Democracy:

Institutional and Communal Responses to Canadian First Nations and Maori Heritage Concerns. *Journal of Material Culture* 17(3): 307-324.

Bruchac, Margaret M.

2010 Constructing Indigenous Association: Protocols of Recognition and NAGPRA Compliance. *Anthropology News* 51(3):5, 8.

Bruning, Susan B.

2006 Complex Legal Legacies: The Native American Graves Protection and Repatriation Act, Scientific Study, and Kennewick Man. *American Antiquity* 71(3):501-521.

Burton, Lloyd and David Ruppert

1999 Bear's Lodge or Devils Tower: Inter-Cultural Relations, Legal Pluralism, and the Management of Sacred Sites on Public Lands. 8 *Cornell J.L. & Pub. Pol'y* 201.

Cajete, Gregory

1993a An Enchanted Land: Spiritual Ecology and a Theology of Place. *Winds of Change* 8(2):50-53.

1993b An Interview With Dr. Greg Cajete. *Winds of Change* 8(2):53-55.

1993-1994 An Ensouled and Enchanted Land: Theology of Place in Northern New Mexico. *In* Cuandero de la Resolana: A Rio Arriba Bioregion "Pullout" Workbook. Juan Estevan Arellano, ed. Pp. 6-9. Embudo, NM: Arellano 6 (Winter).

1994a Land and Education. *Winds of Change* 8(1):42-47.

1994b Look to the Mountain: An Ecology of Indigenous Education. Durango, CO: Kivaki Press.

1999 A People's Ecology: Explorations in Sustainable Living. Santa Fe: Clear Light Publishers.

Chapin, Mac, Zachary Lamb and Bill Threlkeld

2005 Mapping Indigenous Lands. *Annual Review of Anthropology*. Vol 34:619 – 638.

Cherokee Nation v. Georgia

1831 U. S. Supreme Court 30 U.S. (5 Pet.) 1, 8 L. Ed. 25.

Chilisa, Bagele

2012 *Indigenous Research Methodologies*. Los Angeles: Sage Publications.

Cochran, Stuart

1995 The Ethnic Implications of Stories, Spirits, and the Land in Native American

Pueblo and Aztlán Writing. In MELUS Vol. 20(2):69-91. Varieties of Ethnic Criticism (Summer).

Colombi, Benedict J. and James F. Brooks, eds.

2012 *Keystone Nations: Indigenous Peoples and Salmon Across the North Pacific*. Santa Fe: School for Advanced Research.

2005 Dammed in Region Six: The Nez Perce Tribe, Agricultural Development, and the Inequity of Scale. *American Indian Quarterly* 29(3/4):560-589.

Colwell-Chanthaphonh, Chip

2010 Remains Unknown: Repatriating Culturally Unaffiliated Human Remains. *Anthropology News* 51(3):4, 8.

2005 Social Thought & Commentary: Portraits of a Storied Land: An Experiment in Writing the Landscapes of History. *Anthropological Quarterly* 78(1):151-177.

Colwell-Chanthaphonh, Chip, and T. J. Ferguson

2010 Intersecting Magisteria. *Journal of Social Archaeology* 10(3):325-346.

2009 *Inheriting the Past: The Making of Arthur C. Parker and Indigenous Archaeology*. Tucson: University of Arizona Press.

Cook-Lynn, Elizabeth

2012 *A Separate Country: Postcoloniality and American Indian Nations*. Lubbock, Texas: Texas Tech University Press.

Cornell, Stephen and Douglas Hartmann

1998 *Ethnicity and Race: Making Identities in a Changing World*. Thousand Oaks, CA: Pine Forge Press.

Cresswell, Tim

2010 New Cultural Geography—An Unfinished Project? *Cultural Geographies* 17:169-174.

Curtis, Charles

1892 *Handwritten Autobiography of Charles Curtis*. Kansas Historical Society, Manuscript Collection 22, Microfilm Roll LM 938.

Daniels, Stephen and Hayden Lorimer

2012 Until the End of Days: Narrating Landscape and Environment. *Cultural Geographies* 19(1):3-9.

Darling, J. Andrew and Barnaby V. Lewis

2007 Songscales and Calendar Sticks. In *The Hohokam Millennium*. Fish, Suzanne

K. and Paul Fish, eds. Pp. 131-139. Santa Fe: School for Advanced Research.

Dartmouth College

2013 "E53 -- *Solutio problematis ad geometriam situs pertinentis*" (The solution of a problem relating to the geometry of position). Excerpt from *The Euler Archive* available online at <https://math.dartmouth.edu/~euler/pages/E053.html>. Accessed 21 October 2014.

Debo, Angie

1940 *And Still the Waters Run*. Princeton: Princeton University Press.

1970 *A History of the Indians of the United States*. Norman: University of Oklahoma Press.

Delgamuukw v. British Columbia [1997] 3 S.C.R. 1010

Deloria, Vine Jr.

1992 Indians, Archaeologists, and the Future. *American Antiquity*. 57(4):595-598.

1993 Personal Letter to Dr. Paul Martin, University of Arizona. Original letter in the personal collection of Gina D. Stuart-Richard.

1994 *God Is Red: A Native View of Religion*. Golden, CO: Fulcrum Publishing.

Deloria, Vine Jr.

1999 *Spirit and Reason: The Vine Deloria, Jr. Reader*. Samuel Scinta, Kristen Foehner, Barbara Deloria Eds. Golden, CO: Fulcrum Publishing.

Downer, Alan S.

1997 Archaeologists - Native American Relations. In *Native Americans and Archaeologists: Stepping Stones to Common Ground*. Nina Swidler, Kurt E. Dongoske, Roger Anyon and Alan S. Downer, eds. Pp. 23-34. Walnut Creek, CA: AltaMira Press.

Echo-Hawk, Roger C.

2000 Ancient History in the New World: Integrating Oral Traditions and the Archaeological Record in Deep Time. *American Antiquity* 65(2):267-290.

Echo-Hawk, Walter R.

2013 *In the Light of Justice: The Rise of Human Rights in Native America and the UN Declaration on the Rights of Indigenous People*. Golden, CO: Fulcrum Press.

Edgar, Heather J. H., Edward A. Jolie, Joseph F. Powell and Joe E. Watkins

2007 Contextual Issues in Paleoindian Repatriation: Spirit Cave Man as a Case Study. *Journal of Social Archaeology* 7(1):101-122.

- Employment Division, Department of Human Resources of Oregon v. Smith*
1990 U. S. Supreme Court, 494 U. S. 872, 110 S. Ct. 1595, 108 L. Ed. 2d 876.
- Enote, Jim and Jennifer McLerran, Eds.
2011 *A:shiwí A:wán Ułohanne: The Zuni World*. Flagstaff: A:shiwí A:wán Museum and Heritage Center and the Museum of Northern Arizona.
- Ex Parte Crow Dog*
1883 U. S. Supreme Court, 109 U.S. 556, 3 S. Ct. 396, 27 L. Ed. 1030.
- Farman, Jason
2010 Mapping the Digital Empire: Google Earth and the Process of Postmodern Cartography. *New Media & Society* 12(6):869-888.
- Federal Register
2011 Notice of Intent to Prepare an Environmental Impact Statement. Online at <http://www.gpo.gov/fdsys/pkg/FR-2011-12-08/html/2011-31563.htm>, accessed March 23, 2011.
- Ferguson, T. J., with Chip Colwell-Chanthaphonh and Robert W. Preucel
2006 *History is in the Land: Multivocal Tribal Traditions in Arizona's San Pedro Valley*. Tucson: University of Arizona Press.
- Ferguson, T. J., and E. R. Hart.
1985 *A Zuni Atlas*. Norman: University of Oklahoma Press.
- Flavelle, Alix
2002 *Community Mapping Handbook: A Guide to Making Your Own Maps of Communities & Traditional Lands*. Edmonton, AB: Lone Pine Foundation.
- Freedom of Information Act
5 U.S.C. § 552.
- Frers, Lars
2013 The Matter of Absence. *Cultural Geographies* 20:431-445.
- Geertz, Clifford, ed.
1973 *Thick Description: Toward an Interpretive Theory of Culture*. In *The Interpretation of Cultures: Selected Essays*. New York: Basic Books, Inc.
- Getches, David H., Charles F. Wilkinson, Robert A. Williams, Jr. and Matthew L. M. Fletcher
2011 *Cases and Materials on Federal Indian Law, Sixth Edition*. St. Paul: West Publishing Co.
- Gibson, Chris, Chris Brennan-Horley, and Andrew Warren

2010 Geographic Information Technologies for Cultural Research: Cultural Mapping and the Prospects of Colliding Epistemologies. *Cultural Trends* 19(4):325-348.

Gladwin, Thomas

1970 *East is a Big Bird: Navigation & Logic on Puluwat Atoll*. Cambridge: Harvard University Press.

Goes In Center, Jhon

2015 "Maka Si Tomni (Surrounding the Universe)." Video online at http://www.tribalgis.com/index.php?option=com_youtubegallery&view=youtubegallery&itemid=654). Accessed 20 July 2015.

Harjo, Suzan Shown

2005 "How Many Dead Indians Will Satisfy Feds and Scientists?" *Indian Country Today* August 10. <http://indiancountrytodaymedianetwork.com/2005/08/10/how-many-dead-indians-will-satisfy-feds-and-scientists-97782>. Accessed 10 November 2013.

Hart, E. Richard

2000 The Continuing Saga of Indian Land Claims. *American Indian Culture and Research Journal* 24(1):163-171.

Harvard Law School

2015 "Legal Theory: Critical Race Theory." *The Bridge: Topics in Legal Reasoning*. Online at <http://cyber.law.harvard.edu/bridge/CriticalTheory/critical4.htm>. Accessed 02 January 2015.

Hershey, Robert Alan, Jennifer McCormack and Gillian E. Newell

2014 Mapping Intergenerational Memories (Part I): Proving the Contemporary Truth of the Indigenous Past. Arizona Legal Studies Discussion Paper No. 14-01. Tucson: University of Arizona James E. Rogers College of Law. Available online at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2377486. Accessed 23 October 2014.

Hill, Lisa

2013 Archaeologies and Geographies of the Post-Industrial Past: Landscape, Memory and the Spectral. *Cultural Geographies* 20:379-396.

Hillis, Ken, Michael Petit and Kylie Jarrett

2013 *Google and the Culture of Search*. New York: Routledge Press.

Holm, Sharon

2008 The "Lie" of the Land. *American Indian Quarterly* Summer 32(3):243-274.

Hoxie, Frederick E.

2001 *A Final Promise: The Campaign to Assimilate the Indians, 1880 – 1920*. Lincoln: Bison Books/University of Nebraska Press.

“Indian Sacred Sites

1996 Executive Order 13007 signed by President William Clinton. Online at <http://www.nps.gov/history/local-law/eo13007.htm>, accessed September 26, 2013.

Ingold, Tim

1993 The Temporality of the Landscape. *World Archaeology* 25(2):152-174.

2000 *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. New York: Routledge.

2004 Cultural on the Ground: The World Perceived Through the Feet. *Journal of Material Culture* 9(3):315-340.

2005 Comments on Christopher Tilley: The Materiality of Stone: Explorations in Landscape Phenomenology. *Norwegian Archaeological Review* 38(2):122-129.

2006 Rethinking the Animate, Re-animating Thought. *Ethnos: Journal of Anthropology* 71(1):9-20.

2011 *Being Alive: Essays on Movement, Knowledge and Description*. London: Routledge Press.

Johnson v. McIntosh

1823 U. S. Supreme Court 21 U.S. (8 Wheat.) 543, 5 L. Ed. 681

Keller, Robert H. and Michael F. Trek

1998 *American Indians and National Parks*. Tucson: University of Arizona Press.

King, Thomas F.

2003 *Places That Count: Traditional Cultural Properties in Cultural Resource Management*. Lanham, MD: AltaMira Press.

2008 *Cultural Resource Laws and Practice*. Lanham, MD: AltaMira Press.

Kraus, D. Bambi

2010 Assessing Federal NAGPRA Implementation: Summary of a Key 2009 Report. *Anthropology News* 51(3):24-25.

Krech, Shepard

2000 *The Ecological Indian: Myth and History*. New York: W. W. Norton & Co., Inc.

Kroeber, A. L.

1917 The Superorganic. *American Anthropologist*, New Series, 19(2):163-213.

Kuprecht, Karolina

2012 The Concept of “Cultural Affiliation” in NAGPRA: Its Potential and Limits in the Global Protection of Indigenous Cultural Property Rights. *International Journal of Cultural Property* 19:33-63.

LaDuke, Winona.

2005 *Recovering the Sacred*. Cambridge: South End Press.

Leighly, John, ed.

1963 *Land and Life: A Selection From the Writings of Carl Ortwin Sauer*. Berkeley: University of California Press.

Lewis, G. Malcolm

1998 *Cartographic Encounters: Perspectives on Native American Mapmaking and Map Use*. Chicago: University of Chicago Press.

Lippert, Dorothy

1997 In Front of the Mirror: Native Americans and Academic Archaeology. *In Native Americans and Archaeologists: Stepping Stones to Common Ground*. Nina Swidler, Kurt E. Dongoske, Roger Anyon and Alan S. Downer, eds. Pp. 120-127. Walnut Creek, CA: Altamira Press.

Lone Wolf v. Hitchcock

1903 United States Supreme Court 187 U. S. 553

Lyng v. Northwest Indian Cemetery Protective Association

1988 U. S. Supreme Court, 485 U. S. 439, 108 S. Ct. 1319, 99 L. Ed. 2d 534.

Mack, Sean, Liza Mack, Lilian Alessa and Andrew Kliskey

2011 The Integration of Digital Terrain Visualization in Ethnography: The Historic Village of Belkofski, Alaska. *Visual Anthropology* 24:455-467.

Maddrell, Avril

2013 Living with the Deceased: Absence, Presence and Absence-Presence. *Cultural Geographies* 20:501-522.

Malafouris, Lambros

2013 *How Things Shape the Mind: A Theory of Material Engagement*. Cambridge: Massachusetts Institute of Technology.

Mannel, Sylvio, Kim Winkelman, Stacy Phelps, Mike Fredenberg

2007 Applications of a GIS Program to Tribal Research: Its Benefits, Challenges and Extensions to the Community. *Journal of Geoscience Education* 55(6):574-580.

- Marshall, Catherine and Gretchen B. Rossman
2011 *Designing Qualitative Research*. Thousand Oaks, CA: Sage Publications.
- Mawani, Renisa
2010 "Half-Breeds," Racial Opacity, and Geographies of Crime: Law's Search for the "Original" Indian. *Cultural Geographies* 17:487-506.
- McKeown, C. Timothy
2013 *In the Smaller Scope of Consciousness: The Struggle for National Repatriation Legislation, 1986-1990*. Tucson: University of Arizona Press.
- McNickle Center, D'Arcy
2013 "Why You Can't Teach U. S. History Without American Indians." Newberry Library Symposium, 3 May 2013, Chicago, IL.
- Meier, Lars, Lars Frers and Erika Sigvardsdotter
2013 The Importance of Absence in the Present: Practices of Remembrance and the Contestation of Absences. *Cultural Geographies* 20:423-430.
- Menominee Tribe of Indians v. United States*
1968 U. S. Supreme Court, 391 U. S. 404, 88 S. Ct. 1705, 20 L. Edm. 2d 697.
- Merrell, Carolynne
2013 Map Rock Idaho Site to be Protected. *La Pintura: the Official Newsletter of the American Rock Art Research Association* Vol 39 (1). Available online at: <http://www.arara.org/documents/LP-39-1.pdf>. Accessed 7 December 2014.
- Middleton, Elisabeth Rose
2011 *Trust in the Land: New Directions in Tribal Conservation*. Tucson: University of Arizona Press.
- 2010 Seeking Spatial Representation: Reflections on Participatory Ethnohistorical GIS Mapping of Maidu Allotment Lands. *Ethnohistory* 57(3):363-387.
- Mills, C. Wright
1956 *The Power Elite*. New York: Oxford University Press.
- Minnesota v. Mille Lacs Band of Chippewa Indians*
1999 U. S. Supreme Court, 523 U. S. 172, 119 S. Ct. 1187, 143 L. Ed. 2d 270.
- Monmonier, Mark
1996 *How to Lie with Maps*. Chicago: University of Chicago Press.
- Momaday, N. Scott

1989 *The Ancient Child: A Novel*. New York: Doubleday.

Montana v. United States

1981 U. S. Supreme Court, 450 U. S. 544, 101 S. Ct. 1245, 67 L. Ed. 2d 493.

Morton v. Mancari

1974 U. S. Supreme Court, 417 U. S. 535, 94 S. Ct. 2474, 41 L. Ed. 2d. 290

National Historic Preservation Act of 1966 (Public Law 89-665) 16 U.S.C. 470 et seq.

National Museum Australia

2014 Ngurrara: The Great Sandy Desert Canvas. Available online at http://www.nma.gov.au/exhibitions/ngurrara_the_great_sandy_desert_canvas/home. Accessed 23 October 2014.

National Park Service

1978 Indian Lands Areas Judicially Established. <http://www.nps.gov/nagpra/DOCUMENTS/ClaimsMAP.htm>, accessed September 25, 2013.

1998 National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties. Available online at <http://www.nps.gov/nr/publications/bulletins/pdfs/nrb38.pdf>, accessed December 26, 2011.

2002 National Register Bulletin: How to Apply the National Register Criteria for Evaluation. <http://www.nps.gov/nr/publications/bulletins/nrb15/>, accessed September 23, 2013.

2013 Native American Consultation Database. <http://grants.cr.nps.gov/nacd/index.cfm>, accessed September 23, 2013.

2013 National NAGPRA Website. <http://www.nps.gov/nagpra/>, accessed September 26, 2013.

National Public Radio

2013 Trading Bows and Arrows for Laptops: Carbon & Culture. Video online at <http://redux.com/view/post/3303215/Trading-Bows-and-Arrows-for-Laptops-Carbon-Culture>, accessed September 26, 2013.

Native American Graves Protection and Repatriation Act *As Amended* (Public Law 101-601) 25 U.S.C. 3001 et seq.

Native American Graves Protection and Repatriation Regulations (43 Code of Federal Regulations Part 10) <http://www.nps.gov/nagpra/mandates/>, accessed September 23, 2013.

- Newmann, Thomas W., Robert M. Sanford, and Karen G. Harry.
2010 *Cultural Resources Archaeology*. Lanham, MA: AltaMira Press.
- Newton, Nell Jessup, ed.
2012 *Cohen's Handbook of Federal Indian Law*. Albuquerque: American Indian Law Center.
- New Mexico v. Mescalero Apache Tribe*
1983 U. S. Supreme Court, 462 U. S. 324, 103 S. Ct. 2378, 76 L. Ed. 2d 611.
- Nicholas, George, John R. Welch, Alan Goodman, Randall McGuire
2010 *Beyond the Tangible: Repatriation of Cultural Heritage, Bioarchaeological Data, and Intellectual Property*. *Anthropology News* 51(3):11-12.
- NoiseCat, Julian Brave and Dayana Morales Gomez
2015 "Apaches Rally at Capital, Vowing to Continue Fighting for Sacred Oak Flat." *Huffington Post*, July 22, 2015. Online at http://www.huffingtonpost.com/entry/apaches-and-allies-rally-at-capital-to-save-sacred-oak-flat-from-massive-mine_55aff2f9e4b08f57d5d3747d. Accessed July 29, 2015.
- Palmer, Mark H.
2012 *Cartographic Encounters at the Bureau of Indian Affairs Geographic Information System Center of Calculation*. *American Indian Culture and Research Journal* 36(2):75-102.
- Paskus, Laura
2009 *Dueling Claims*. *High County News*. <http://www.hcn.org/issues/41.21/dueling-claims>, accessed December 26, 2011.
- Peluso, Nancy Lee
1995 *Whose Woods are These?: Counter-Mapping Forest Territories in Kalimantan, Indonesia*. *Antipode* 27(4):383-406.
- Perea, Juan F., Richard Delgado, Angela P. Harris, Jean Stafancic and Stephanie M. Wildman
2007 *Race and Races: Cases and Resources for a Diverse America*. St. Paul: Thomson/West Publishers.
- Perkins, E. T., Jr.
1897 *Letter to John Wesley Powell*, Washington, D.C. January 14. Smithsonian Institution manuscript number: NAA MS 3423-a. Record ID: siris_arc_1580.
- Personal Life Media
2007 *Vine Deloria, Jr. - Evolution, Spirit, and Indigenous Mind*. Podcast Episode 27.

<http://personallifemedia.com/podcasts/212-living-dialogues/episodes/2713-vine-deloria-jr-evolution-spirit>, accessed February 8, 2012.

Pigliasco, Guido Carlo

2009 Intangible Cultural Property, Tangible Databases, Visible Debates: The Sawau Project. *International Journal of Cultural Property* 16(3):255-272.

Plaut, Ethan

2009 Tribal-Agency Confidentiality: A Catch-22 for Sacred Site Management? *36 Ecology Law Quarterly* 137.

“Protection of Historic Properties,” Title 36 Code of Federal Regulations, Pt. 800, 2004 ed.

Pullar, Gordon L.

1992 Ethnic Identity, Cultural Pride, and Generations of Baggage: A Personal Experience. *Arctic Anthropology* 29(2):182-191.

R. v. Bernard

1988 2 SCR 833

R. v. Marshall; R. v. Bernard

2005 SCC 43

R. v. Sparrow

1990 1 S.C.R. 1075

Roberson Susan L., and N. Scott Momaday

1998 Translocations and Transformations: Identity in N. Scott Momaday’s “The Ancient Child.” *American Indian Quarterly* 22(1/2 Winter-Spring):31-45.

Roth, Robin

2009 The Challenges of Mapping Complex Indigenous Spatiality: From Abstract Space to Dwelling Space. *Cultural Geographies* 16:207-227.

Royal Institute of Technology, Stockholm, Sweden

2014 Network Optimization FEL 3250 Course Information. Available online at <https://people.kth.se/~carlofi/teaching/FEL3250-2013/courseinfo.html>. Accessed 23 October 2014.

Sacred Lands Film Project

2012 What is a Sacred Site? <http://www.sacredland.org/home/resources/tools-for-action/protection-strategies-for-sacred-sites/what-is-a-sacred-site/>, Accessed February 8, 2012.

Santa Clara Pueblo v. Martinez

1978 U. S. Supreme Court, 436 U. S. 49, 98 S. Ct. 1670, 56 L. Ed. 2d 106

Sassure, Ferdinand de, with C. Bally, A. Sechehaye, and W. Baskin.

1960 *Course In General Linguistics: Ferdinand de Saussure*. London: Owen.

Sauer, Carl Ortwin

1963 *The Morphology of Landscape* *In Land and Life: A Selection From the Writings of Carl Ortwin Sauer*. John Leighly, ed. Pp. 315-350. Berkeley: University of California Press.

Seagle, Delmar E. and Larry V. Bagwell

2001 *Mapping Blackfeet Indian Reservation Irrigation Systems with GPS and GIS. Photogrammetric Engineering & Remote Sensing*. Vol 67(2):171-178.

Sekaquaptewa, Emory and Dorothy Washburn

2009 *As a Matter of Practice. . . Hopi Cosmology in Hopi Life: Some Considerations for Theory and Method in Southwestern Archaeology*. *Time and Mind: The Journal of Archaeology, Consciousness and Culture* 2(2):195-214.

Shackel, Paul A.

2003 *Archaeology, Memory, and Landscapes of Conflict*. *Historical Archaeology* 37(3), *Remembering Landscapes of Conflict*:3-13.

Sharpe, Tom

2011 *Members of State Board Say Martinez Coaxed Them into Pro-mine Decision on Mount Taylor*. Formerly published by *The Santa Fe New Mexican*. <http://forgotten-navajopeople.org/2011/05/17/5122011-the-new-mexican-members-of-state-board-say-martinez-coaxed-them-into-pro-mine-decision-on-mount-taylor/>, accessed September 23, 2013.

Silko, Leslie Marmon

1977 *Ceremony*. New York: Fire Keepers.

1986 *Landscape, History, and the Pueblo Imagination*. *Antaeus* 57:83-94.

1996 *Yellow Woman and a Beauty of the Spirit: Essays on Native American Life Today*. New York: Touchstone.

Sletto Bjorn

2009a "Indigenous People Don't have Boundaries": Reborderings, Fire Management, and Productions of Authenticities in Indigenous Landscapes. *Cultural Geographies* 16:253-277.

2009b *Special Issue: Indigenous Cartographies*. *Cultural Geographies* 16:147-152.

Spengler, Oswald

1920 *Der Untergang del Abendlandes. Umrisse Einer Morphologie der Weltgeschichte*, Vol. I. München: GGP Media.

St. Martin, Kevin and Madeleine Hall-Arber

2008 The Missing Layer: Geo-Technologies, Communities, and Implications for Marine Spatial Planning. *Marine Policy* 32:779-786.

Standing Bear v. Crook

1879 25 F.Cas. 695, 697 (D.D.D.Neb.1879) (No. 14,891).

Stuart-Richard, Gina

2012 *Re-Imagining the Landscape: Persistent Ideologies and Indelible Marks Upon the Land*. Thesis, University of Arizona. Ann Arbor: ProQuest. UMI No. 1509743.

2013 *When the Watchdogs Joined the Wolves: A Tricky Little Game of Indian Territory Land Fraud*. American Society for Ethnohistory, 59th Annual Conference, September 11-15, New Orleans, LA.

Swentzell, Rina.

1993 Mountain Form, Village Form: Unity in the Pueblo World. *In Ancient Land, Ancestral Places: Paul Logsdon in the Pueblo Southwest*. Santa Fe: Museum of New Mexico Press.

Swidler, Nina, with Kurt E. Dongoske, Roger Anyon, and Alan S. Downer, eds.

1997 *Native Americans and Archaeologists: Stepping Stones to Common Ground*. Walnut Creek: CA: Altamira Press.

Talton v. Mayes

1896 U. S. Supreme Court, 163 U. S. 376, 16 S. Ct. 986, 41 L. Ed. 196

Taylor, Anne, David Gadsden, Joseph J. Kerski, and Heather Warren, eds.

2012 *Tribal GIS: Supporting Native American Decision Making*. Redlands, CA: ESRI Press.

Thom, Brian

2009 The Paradox of Boundaries in Coast Salish Territories. *Cultural Geographies* 16(2):179-205.

Tobias, Terry N.

2009 *Living Proof: The Essential Data-Collection Guide for Indigenous Use-And-Occupancy Map Surveys*. Vancouver: Ecotrust Canada and Union of BC Indian Chiefs.

2000 Chief Kerry's Moose: A Guidebook to Land Use and Occupancy Mapping, Research Design and Data Collection. Vancouver: Union of BC Indian Chiefs and Ecotrust Canada.

Treaty of Dancing Rabbit Creek

1830 Available online from the Choctaw Nation of Oklahoma at <http://www.choctawnation.com/history/pre-removal-government-treaties/1830-treaty-of-dancing-rabbit-creek/> Accessed 16 December 2014.

TribalGIS.com

2015 Online at http://www.tribalgis.com/index.php?option=com_youtubegallery&itemid=654. Accessed 20 July 2015.

Tsleil-Waututh Nation

2015 Mapping and GIS. Online at <http://www.twnation.ca/en/About%20TWN/Stewardship/Mapping%20and%20GIS.aspx>. Accessed 10 July 2015.

2009 *Treaty, Lands and Resources*. Online at <http://www.twnation.ca/en/Government/Departments/Treaty%20Lands%20and%20Resources.aspx>. Accessed 10 July 2015.

Tsosie, Rebecca

1999 Privileging Claims to the Past: Ancient Human Remains and Contemporary Cultural Values. 31 Ariz St. L.J. 583.

United Nations

2008 Declaration on the Rights of Indigenous People www.un.org/esa/socdev/unpfi/documents/DRIPS_en.pdf, accessed September 25, 2013.

2012a Report of the Special Rapporteur on the Rights of Indigenous Peoples, James Anaya: The Situation of Indigenous Peoples in the United States of America. <http://unsr.jamesanaya.org/country-reports/the-situation-of-indigenous-peoples-in-the-united-states-of-america>. Accessed September 25, 2013.

2012b Report of the Special Rapporteur on the Rights of Indigenous Peoples, James Anaya: The Situation of Indigenous Peoples in Canada. <http://unsr.jamesanaya.org/docs/countries/2014-report-canada-a-hrc-27-52-add-2-en.pdf>. Accessed September 25, 2014.

U. S. Department of Agriculture, U. S. Forest Service

2008 Cultural Heritage Cooperative Authority, Section 3056, 25 U.S.C. § 3056.

U. S. Geologic Survey

2014 *The National Map Small Scale Collection, Small Scale Datasets: Coal Fields of the United States*. Available online at www.nationalatlas.gov/mld/coalfdp.html.

Accessed 18 July 2014.

U. S. House of Representatives

1868 40th Congress, 3d Session, Ex. Doc. No. 3. *Letters from the Secretary of the Treasury, Transmitting Estimates of Additional Appropriations Required for the Service of the Fiscal Year Ending June 30, 1869, and Previous Years; and Also Estimates of Appropriations Required for the Service of the Fiscal Year Ending June 30, 1870.* Washington: Government Printing Office.

1869 41st Congress, 2d Session, Ex.Doc. No. 5. *Letter from the Secretary of the Treasury Transmitting Estimates of Appropriations Required for the Service of the Fiscal Year Ending June 30, 1871 and of Additional Appropriations Required for the Service of the Fiscal Year Ending June 30, 1870.* Washington: Government Printing Office.

1870 41st Congress, 3d Session, Ex. Doc. No. 5. *Letter From the Secretary of the Treasury, Transmitting Estimates of Appropriations Required for the Service of the Fiscal year Ending June 30, 1872.* Washington: Government Printing Office.

1871 42nd Congress, 2d Session, Ex. Doc. No. 5. *Letter From the Secretary of the Treasury, Transmitting Estimates of Appropriations Required for the Service of the Fiscal Year Ending June 30, 1873.* Washington: Government Printing Office.

U. S. Senate

1869 *The Policy of Extending Government Aid to Additional Railroads to the Pacific.* Report of the Majority of the Senate Committee on Pacific Railroad, February 19, 1869. Washington: Government Printing Office.

1870 Forty-First Congress, 3d Session, *Report No. 268.* Washington: Government Printing Office.

1885 *President Grover Cleveland State of the Union Address, Congressional Record of December 8, 1885.* Washington: Government Printing Office.

United States Statutes at Large

1871 *An Act Making Appropriations for the Current and Contingent Expenses of the Indian Department, and for Fulfilling Treaty Stipulations with Various Indian Tribes, for the Year Ending June Thirty, Eighteen Hundred and Seventy-Two, and for Other Purposes.* Washington: Government Printing Office.

United States v. Kagama

1886 Supreme Court of the United States, 118 U.S. 375, 6 S.Ct. 1109, 30 L .Ed. 228.

U.S. Department of the Interior v. Klamath Water Users Protective Association
2001 Supreme Court of the United States, 99-1871, 532 U.S. 1 (2001) 189 F.3d 1034.

United States v. Platt

United States v. Earl Platt, Civ. No. 85-1478 USDC, Ariz

United States v. Washington

1976 U. S. District Court, Western District of Washington. 384 F. Supp. 312,
Affirmed 520 F. 2d 676 (9th Cir. 1975) Certiorari denied 423 U. S. 1086, 96 S.
Ct. 877, 47 L. Ed. 2d. 97.

United States v. Winans

1905 U. S. Supreme Court, 198 U. S. 371, 25 S. Ct. 662, 49 L. Ed. 1089.

Washington v. Washington State Commercial Passenger Fishing Vessel Association

1979 U. S. Supreme Court, 443 U. S. 658, 99 s. Ct. 3055, 61 L. Ed. 2d 823.

Wainwright, Joel and Joe Bryan

2009 Cartography, Territory, property: Postcolonial Reflections on Indigenous
Counter-Mapping in Nicaragua and Belize. *Cultural Geographies* 16:153-178.

Walker, Francis A.

1874 *The Indian Question*. Entered According to Act of Congress in the Year 1874 by F.
A. Walker, In the Office of the Librarian of Congress at Washington. Boston: James
R. Osgood and Company.

Watkins, Joe

2004 Becoming American or Becoming Indian: NAGPRA, Kennewick and Cultural
Affiliation. *Journal of Social Archaeology* 4(1):60-80.

Watson, Annette and Orville Huntington

2008 They're Here - I Can Feel Them: The Epistemic Spaces of Indigenous and
Western Knowledges. *Social and Cultural Geography* 9(3):257-281.

Weber, Robert M., Glenn A. Dunno

2001 Riparian Vegetation Mapping and Image Processing Techniques, Hopi Indian
Reservation, Arizona. *Photogrammetric Engineering & Remote Sensing*. Vol 67
(2):179-186.

Welch, John R. and T. J. Ferguson

2007 Putting Patria Back into Repatriation: Cultural Affiliation Assessment of White
Mountain Apache Tribal Lands. *Journal of Social Archaeology* 7(2):171-198.

White, John H. Jr.

1997 *American Locomotive: An Engineering History, 1830 – 1880*. Baltimore: The

Johns Hopkins University Press.

White, Richard

2011 *Railroaded: The Transcontinentals and the Making of Modern America*. New York: W. W. Norton & Company.

Whiteley, Peter M.

2011 Hopi Place Value: Translating a Landscape. *In* *Born in the Blood: On Native American Translation*. Brian Swann, ed. Pp. 84-108. Lincoln: University of Nebraska Press.

2002 Archaeology and Oral Tradition: The Scientific Importance of Dialogue. *American Antiquity* 67(3):405-415.

Wickens Pearce, Margaret and Renee Pualani Louis

2008 Mapping Indigenous Depth of Place. *American Indian Culture and Research Journal*. 32(3):107-126.

Wilkins, David E. and K. Tsianina Lomawaima

2001 *Uneven Ground: American Indian Sovereignty and Federal Law*. Norman, OK: University of Oklahoma Press.

Williams, Robert A, Jr.

2014 American Indians Confront "Savage Anxieties." Interview from Moyers & Company, Public Television. Aired 26 December 2014. Available online at <http://billmoyers.com/episode/american-indians-confront-racism/>. Accessed 26 December 2014.

2012 *Savage Anxieties: The Invention of Western Civilization*. New York: Palmgrave Macmillan.

2005 *Like a Loaded Weapon: The Rehnquist Court, Indian Rights, and the Legal History of Racism in America*. Minneapolis: University of Minnesota Press.

1990 *The American Indian in Western Legal Thought*. Oxford: Oxford University Press.

Williamson, Ray A., Jhon Goes In Center

2001 Using Geospatial Technologies to Enhance and Sustain Resource Planning on Native Lands. *Photogrammetric Engineering & Remote Sensing*. Vol 67(2):167-169.

Wilson, Shawn

2008 *Research is Ceremony: Indigenous Research Methods*. Halifax: Fernwood Publishing.

Worcester v. Georgia

1832 U. S. Supreme Court, 31 U. S. (6 Pet.) 515, 8 L. Ed. 483

Worl, Rosita

2010 Tribal Anthropology in Public Policy Formation. *Anthropology News* 51(3):26.

Wylie, John

2012 Dwelling and Displacement: Tim Robinson and the Questions of Landscape. *Cultural Geographies* 19(3):365-383.

Zuni Tribe v. United States

United States Claims Court in Docket Nos. 327-81L (Ct. Cl., filed May 12, 1981) and 224-84L (Ct. Cl., filed May 3, 1984).