

Retaining Knowledge Sovereignty:



Photo Credit Debi, Red Egg Gallery 2011

Expanding the Application of Tribal Traditional Knowledge on Forest Lands in the Face of Climate Change

Prepared by Dr. Kari Marie Norgaard
for the Karuk Tribe Department of Natural
Resources

2014

Retaining Knowledge Sovereignty: Expanding the Application of Tribal Traditional Knowledge on Forest Lands in the Face of Climate Change

This report is Part II of a two part series produced under the North Pacific Landscape Conservation Cooperative Tribal Climate Change initiative on Knowledge Sovereignty. Part I *Karuk Traditional Ecological Knowledge and the Need for Knowledge Sovereignty: Social, Cultural and Economic Impacts of Denied Access to Traditional Management* situates Karuk traditional knowledge in the practice of cultural management, indicating how Karuk knowledge must remain connected to both the practices that generated the information, and the practices that emerge from it. Part I of this report emphasized two key concepts; first that what we call “traditional ecological knowledge” or “TEK” is not an isolated entity but an enactment of cultural and spiritual practices in the landscape. Karuk and other traditional knowledge is embedded in, and emerges from the practices of traditional management. Second, even it were possible, it is unethical to attempt to remove TEK from Tribal context. Attempts to extract knowledge are a form of cultural appropriation that erodes the very foundations of Tribal life. Knowledge and management are about identity, culture, spiritual practice and subsistence economic activity. This report, *Retaining Knowledge Sovereignty: Expanding the Application of Tribal Traditional Knowledge on Forest Lands in the Face of Climate Change* draws from the experiences of the Karuk Tribe in combination with a review of Tribal case studies, academic and legal literature and current policy initiatives to outline current cultural and institutional barriers for the sovereignty of traditional ecological knowledge and provide a range of recommendations for their resolution at federal, statewide and regional levels.

Acknowledgements

Thankfully none of us think, work or exist in isolation.

This report could never have been written without the assistance of a great many people. It has been an honor to listen and learn from William Tripp, Ron Reed, Leaf Hillman, Lisa Hillman and Bob Rhode of the Karuk Tribe, Frank Lake of the U.S. Forest Service, Kyle Powys White of Michigan State University, Sibyl Diver and Daniel Sarna of University of California at Berkeley, and Mary Wood, Kathy Lynn, Julie Bacon, Kirsten Vineyta, Seth Bichler and Amanda Rogerson of the University of Oregon in the course of writing this document.

Many thanks also to all the ongoing efforts of the Intertribal Timber Council, the National Congress of American Indians, the North Pacific Landscape Conservation Cooperative (NPLCC) and other organizations whose vision and labors have provided a critical foundation for this report.

The North Pacific Landscape Conservation Cooperative provided generous funding through Award #FI2AP00826

May the Karuk and all Tribal People achieve the full sovereignty over their knowledge, lands and spiritual practices.

Table of Contents

Introduction 5

- *Traditional Knowledge is Inseparable from Culture*
- *Knowledge Sovereignty Requires Traditional Management*
- *Knowledge Sovereignty and Overall Tribal Sovereignty are Interconnected*
- *Climate Change is Negatively Impacting Tribal Sovereignty*
- *Tribal Management of Off-Reservation Lands*
- *Report Overview*

Chapter One: Traditional Knowledge, Knowledge Sovereignty and Climate Change as Strategic Opportunity 15

- *What is at Stake with Knowledge Sovereignty?*
- *Climate Change as Strategic Opportunity*
- *Recent Initiatives Providing a Platform for Knowledge Sovereignty*
 - *United Nations Declaration of the Rights of Indigenous Peoples*
 - *National Cohesive Wildland Fire Management Strategy*
 - *1994 Tribal Forest Protection Act (TFPA)*
 - *Intertribal Timber Council 2013 Review of TFPA*
 - *Executive Order 13175 on Consultation and Coordination with Indian Tribes*
 - *2009 Omnibus Act*
 - *Western Regional Air Partnership Joint Forum on Fire Emissions*
 - *Public and Tribal Trust Litigation*
 - *2013 White House Council on Native American Affairs*
 - *Interdepartmental Memorandum of Understanding on Sacred Sites and Sacred Landscapes*
 - *Guidelines for Considering Traditional Knowledge in Climate Change Initiatives*
 - *Recent National Congress of American Indian Resolutions*

Chapter Two: Cultural Barriers Eroding Knowledge Sovereignty..... 33

- *Conceptions of the Nature and Use of Knowledge*
- *Conceptions of the Relationship Between People and “Nature”*

- *Weak or Non-Existent Interpersonal Relationships Between Individuals in Tribes and Federal or other non-Native agencies*
- *Lack of Cross Cultural Knowledge, Knowledge of Specific Local Tribal Priorities and Tribal Trust Responsibilities*

Chapter Three:

Institutional Barriers Eroding Knowledge Sovereignty 46

- *Inadequate Protection of Tribal Knowledge*
- *Failure to Enforce Federal Tribal and Public Trust Responsibilities*
- *Changing Political Terrain and Laws of other Sovereigns*
- *Organizational Barriers to Conducting Traditional Management on Off-Reservation Lands*
- *Barriers to Intergovernmental Project Collaboration*
- *Limits in Tribal Capacity*
- *Absence of Applicable Data/Non-Tribal Research Agenda*

Appendix

Compilation of Strategies to Promote Traditional Knowledge Sovereignty 65

- *Executive Summary Sheet for National Strategies*
- *Executive Summary Sheet for Statewide, Regional and Local Strategies*

Bibliography 74

Retaining Knowledge Sovereignty: Expanding the Application of Tribal Traditional Knowledge in the Face of Climate Change

Introduction

“Practices such as pruning, burning and coppicing at regular intervals once contributed significantly to historic landscape resiliency and community livelihood. Access to abundant and quality hunting, fishing, and gathering areas as well as other traditional, ceremonial, or religious fire use factors have experienced significant decline following fire exclusion. The Traditional Ecological Knowledge (TEK) that is maintained in the West is at risk of loss if incorporation of this knowledge to practice, utilization, and adaptation cannot be revitalized. To mitigate this risk, the focus needs to be at the homeland scale as an intergenerational process within Tribal communities that wish to uphold their inherent responsibilities over Tribal lands, territory, and resources.”

National Cohesive Wildland Fire Management Strategy Phase III, 2013, 30

Karuk management principles have been central to the evolution of the flora and fauna of the mid-Klamath ecosystem (Andersen 2005, Karuk Tribe 2010, Lake et al 2010, Skinner et al 2006). Ongoing and future climate change intensifies existing ecological pressures in the Klamath Basin and on Karuk traditional foods and cultural use species already under threat. Future climate scenarios for the Klamath Basin point to unique threats to both riverine and “upslope” species, as shifting and increasingly variable precipitation patterns impact stream flows, stream temperatures and fire regimes (Karl et al 2009). Climate change poses a threat not only to the Klamath ecosystem, but also to Karuk culture, which is intimately intertwined with the presence, use and management of cultural use species (Karuk Tribe 2010, Lake et al 2010, Norgaard 2005).

Yet despite the seriousness of this situation, important possibilities exist in the present moment for both Tribal and non-Tribal resource managers. The land management techniques developed by Tribes over generations can reduce the need for costly fire suppression, and lead to the more efficient and effective resource management that is urgently needed in the face of climate change. As members of

communities that have co-evolved with specific landscapes over generations, Tribal traditional managers such as the Karuk can lead the way in restoring ecosystem health by returning traditional ecological knowledge and practices to the landscape. Their actions can serve as wider models of adaptability to changing climatic conditions, economic cycles, and societal change. In their 2012 report the Intertribal Timber Council notes that “As political sovereigns, Tribes are able to practice stewardship and apply traditions, practices, and accumulated wisdom to care for their resources, exercise co-management authorities within their traditional territories, and strongly influence and persuade other political sovereigns to protect natural resources under the public trust doctrine” (15). Furthermore, Tribal bureaucratic structure is often less cumbersome than that of federal counterparts which allows for the much needed development of innovative policies and rapid implementation of new ideas (see e.g. Intertribal Timber Council 2013, 7). In the context of climate change, Karuk Tribal knowledge and management principles can be utilized to protect public as well as Tribal trust¹ resources (Karuk Tribe 2012).

This report is Part II of a two part series produced under the North Pacific Landscape Conservation Cooperative Tribal Climate Change initiative on Knowledge Sovereignty. Part I *Karuk Traditional Ecological Knowledge and the Need for Knowledge Sovereignty: Social, Cultural and Economic Impacts of Denied Access to Traditional Management* situates Karuk traditional knowledge in the practice of cultural management, indicating how Karuk knowledge must remain connected to both the practices that generated the information, and the practices that emerge from it. This report, *Retaining Knowledge Sovereignty: Expanding the Application of Tribal Traditional Knowledge on Forest Lands in the Face of Climate Change* draws from the experiences of the Karuk Tribe in combination with a review of Tribal case studies, academic and legal literature and current policy initiatives to outline current cultural and institutional barriers for the sovereignty of traditional ecological knowledge and provide a range of recommendations for their resolution at federal, statewide and regional levels.

¹ Tribal trust is “a principle that arises from the Native relinquishment of land in reliance on federal assurances that retained lands and resources would be protected for future generations. It bears rough analogy to nuisance and trespass law. Ownership of land carries corollary rights of government protection-the right to seek judicial redress against harm to property. The Indian trust responsibility is protection for property guaranteed on the sovereign level, from the federal government to tribes” (see Wood, 2003).

Traditional Knowledge is Inseparable from Culture

Part I of this report emphasized two key concepts; first that what we call “traditional ecological knowledge” or “TEK” is not an isolated entity but an enactment of cultural and spiritual practices in the landscape. Karuk and other traditional knowledge is embedded in, and emerges from the practices of traditional management. Second, even if it were feasible, it is unethical to attempt to remove knowledge from Tribal context. Attempts to extract knowledge are a form of cultural appropriation that erodes the very foundations of Tribal life. Knowledge and management are about identity, culture, spiritual practice and subsistence economic activity. Part of understanding why knowledge cannot be readily “picked up and used” by other agencies has to do with the nature of indigenous knowledge not as a static, one size fits all rulebook or recipe book for actions on the landscape, but rather how that knowledge is generated through an ongoing process that involves observations and actions over time, as well as moral and spiritual components and the social accountability or ‘social license’ of knowledge practitioners.² Traditional knowledge³ is fundamentally part of management, and management is centrally about Karuk culture, identity, spirituality and mental and physical health. The first report then details the profound social impacts that stem from present infringements on knowledge sovereignty and cultural management (see also Norgaard 2014). The continuing loss of Karuk knowledge sovereignty has both serious ecological consequences, and grave consequences for Karuk culture, social systems and political sovereignty.

² We recommend further reading of the excellent and detailed literature on the central role of Western science in the project of colonialism and the corresponding ethical risks Native communities face (Bannister and Hardison 2006, Hansen and Van FLeed 2003, Hardison and Bannister 2011, Hill et al 2010, Janke 2009, Williams and Hardison 2013, Colorado and Collins 1987, Agrawal 2002, Briggs and Sharp 2004, Briggs 2005, Green 2004, Heckler 2012, Nadasdy 2003, Ellen, Parkes and Bicker 2000, Watson-Verran and Turnball 1995, Wildcat 2009), the ethical risks for Tribes from engaging in research with non-Native entities (Baldy 2013, Williams and Hardison 2013, Hill et al 2010, Hardison and Bannister 2011, Hansen and Van FLeed 2003, Bannister and Hardison 2006) and unfortunately, the ongoing ways that the extraction of Tribal knowledge perpetuates cultural genocide today (see also Norgaard 2014 for more detail specific to Karuk land management struggles).

³ Some leaders in the field now use the phrase “traditional knowledges” in plural thus emphasizing that there are many forms of knowledge and knowledge practitioners, see e.g. the 2014 *“Guidelines for Considering Traditional Knowledges in Climate Change Initiatives”*.

Knowledge Sovereignty Requires Traditional Management

Knowledge cannot be transferred in a manner that many non-Tribal managers are accustomed to. However, there are culturally-appropriate ways that the use and application of Karuk and other Tribal traditional knowledge can be shared to strengthen Tribal culture, enhance sovereignty, and provide benefits to ecosystems and non-Tribal communities alike. The central aim of this report is to describe these options. The most effective and immediate method for increasing the use of traditional knowledge in the face of climate change is to restore Tribal management of the landscape through co-management arrangements that acknowledge Tribal jurisdiction over traditional subsistence resources. Many of the recommendations in this report suggest avenues for returning Tribal access to lands.

Knowledge Sovereignty And Overall Sovereignty Are Interconnected

Tribes across North America and beyond face ongoing threats to political and other forms of sovereignty. Many of the challenges to knowledge sovereignty detailed in this report are a function of threats to overall Tribal sovereignty. The Karuk Tribe in particular faces ongoing political challenges concerning the potential erosion of Tribal sovereignty in the face of continued lack of recognition of land title, and taking of resources by Federal and State agencies.

Tribe's access to their land base is interwoven with other forms of political power. Tribes need to be actively managing the landscape to maintain sovereignty. The ITC goes on to suggest that limits on Tribal use and access to the landscape and environment impacts the ability of Tribes to exercise treaty and other reserved rights. For example, the current exclusion of fire from the landscape creates a situation of denied access to traditional foods and spiritual practices, puts cultural identity at risk, and infringes upon political sovereignty.⁴ As Karuk Cultural Biologist, dipnet fisherman Ron Reed explains:

Without fire the landscape changes dramatically. And in that process the traditional foods that we need for a sustainable lifestyle become unavailable after a certain point. So what that does to the Tribal community, the reason we are going back to that landscape is no longer

⁴ See also Baldy 2013 on connections between management and sovereignty.

there. So the spiritual connection to the landscape is altered significantly. When there is no food, when there is no food for regalia species, that we depend upon for food and fiber, when they aren't around because there is no food for them, then there is no reason to go there. When we don't go back to places that we are used to, accustomed to, part of our lifestyle is curtailed dramatically. So you have health consequences. Your mental aspect of life is severed from the spiritual relationship with the earth, with the Great Creator. So we're not getting the nutrition that we need, we're not getting the exercise that we need, and we're not replenishing the spiritual balance that creates harmony and diversity throughout the landscape.

As noted by the Intertribal Timber Council (ITC), "Close connections of Tribes with their lands and ancestral forests are being weakened as spiritual, cultural and traditional resources are lost (2013,7).

Climate Change is Negatively Impacting Tribal Sovereignty

Climate change itself has the potential for negative impacts on Tribal sovereignty as cultural use species move, as landscapes and territories are altered, and because climate change is rapidly reshaping the legal landscape (Bennett et al 2014, Tsosie 2007, 2009, Wood 2009, Whyte 2013).

"Forest disruption and changes in species composition resulting from climate change could lead to the loss of culturally important resources, negatively impacting Tribal subsistence, culture, and economy. To address these challenges, robust federal-Tribal relationships are needed, particularly when changes affect treaty rights, Tribal lands, and resources held in trust. Collaboration, knowledge-sharing, and joint action by tribes and non-Tribal stakeholders can lead to more effective and sustainable planning efforts around climate change and invasive species"(Voggesser et al. 2013, 618).

In the absence of an overarching legal framework at the federal level Tribes face potential loss of acknowledgement of their jurisdiction if they are excluded from or cannot keep up with the multiple and rapidly changing dynamics between federal and local actors (Cordalis and Suagee 2008).

Tribal Management of Off-Reservation Lands

"Much of the natural web that supports Tribal life and culture occurs beyond the boundaries of Indian country. These lands contain species that tribes hunt

and fish for, roots and berries that they gather, headwaters and tributaries that flow into their reservation streams, and sacred sites. These are being destroyed at an unprecedented pace, and the pressure from industrial America is both unyielding and unbounded, coming from corporations that feed on growth. While environmental disease may sooner or later affect everyone in the United States, the impacts on Indian country are magnified, because the land base is the linchpin for Tribal survival."

-- Mary Christina Wood 2003

This report emphasizes the need to return Tribal management to "off reservation lands." These are the lands that are a part of a Tribes ancestral homeland and territory, but are under the management of other entities. As much as there are mutual benefits and overlapping interests for the return of traditional practices to the landscape, it is important that Tribes be leaders in employing traditional practices. Many Tribes within the North Pacific Landscape Conservation Cooperative, including the Karuk, have held intact significant knowledge of traditional management practices. However, when all or part of ancestral lands are managed by other agencies, it is important that the implementation of traditional management take place in a manner that promotes and protects Tribal sovereignty and the Tribal trust responsibility of agencies. Because Tribal knowledge is a living cultural practice and knowledge sovereignty is intimately interconnected with overall Tribal sovereignty, much of this report will center on the central need for expansion of Tribal traditional management on off-reservation lands.⁵ In this context, the most immediate barrier to the wider practice of Karuk traditional management and sharing of Karuk TEK is not knowledge itself, but understanding of how to communicate traditional TEK and expand traditional management in a manner that simultaneously promotes knowledge sovereignty, Tribal self-determination and Tribal self-governance.

In response to the challenge of expanding management on off-reservation lands, many Tribes have explored or implemented Native Land Trusts (Middelton 2011, Wood and O'Brien 2008a, 2008b). This option may be available to Tribes whose ancestral territory is now held in private lands. The fact that the majority (98%) of Karuk Tribal lands are under the management of the US Forest Service has compelled the Tribe to investigate possibilities that will return traditional

⁵ Because this report emerges from Karuk experience the focus is on forest lands. We hope the strategies outlined here can usefully be adapted for Tribes who maintain relationships with marine, grassland and other ecosystems types.

management to these lands. This report builds from the experiences of the Karuk Tribe for whom preservation of knowledge sovereignty is specifically coupled with the need to return traditional management to public rather than private lands. While the Karuk are somewhat unique as a Federally recognized tribe with such a high percentage of its lands under Federal management, numerous Tribes across the country have begun identifying their aboriginal or ancestral territories in addition to their reservation lands in mapping and planning efforts in the last ten years. This focus on territory rather than on reservations that emerges from the Karuk will benefit Tribes in a variety of situations. Returning management of these lands is good for Tribes, but it also benefits ecosystems and can take pressure off agencies.

“Forests store and filter more than half of the nation’s water supply and absorb 20 percent of the country’s carbon emissions. But our nation’s forests are in need of extensive restoration due to cumulative impacts from wildfire, insects and disease, drought, and lack of active management.”

Intertribal Timber Council 2013, p. 7

Recent recognition of the validity of Tribal Ecological knowledge by many academics and land managers coupled with the recognition of the need for collaboration in the face of catastrophic wildfire and some measure of recognition of the failure of existing Western scientific perspectives and existing management approaches including the focus on single commodities, single species management, have combined to create an exciting political moment for Tribal leadership.⁶ In the mid-Klamath region specifically, many goals in the Forest Service’s own management plan can be best achieved through recognizing the Karuk right to Tribal management.

As signatories to treaties, some Tribes are able to call upon the obligations of the United States to protect their reserved rights to fish, hunt, trap, and gather on Forest Service lands. Tribes that do not have ratified treaties still retain reserved rights. Both treaty and non-treaty Tribes seek to manage off-reservation lands.”

-- Intertribal Timber Council, 2012, 15

⁶ For examples of the acknowledgement of the importance of Tribal knowledge see: Parrotta et al 2012, Burkett 2013, Riedlinger and Berkes 2001, Whyte 2013, Williams and Hardison 2013, Smith and Sharp 2012.

The urgency of the climate change threat has led to new interest in Native traditional knowledge and new pressures for collaboration across entities. But while multiple parties and the ecosystem stand to benefit from the return of Tribal management, it is important that the implementation of traditional management take place in a manner that promotes rather than hinders Tribal sovereignty and Tribal trust. This document follows Potawatomi philosopher Kyle Powys Whyte's (2013) assertion that "Concern for justice should guide how leaders, scientists and professionals who work with or for federally-recognized Tribes approach climate adaptation" (516). Whyte articulates an appropriate Tribal justice framework in relation to tribes and agencies working on climate change as one that "situates justice within the systems of responsibilities that matter to Tribes and many others, which range from webs of inter-species relationship to government to government partnerships. Justice is achieved when these systems of responsibilities operate in ways that support the continued flourishing of Tribal communities" (517).

Report Overview:

Chapter One provides a broad overview of why knowledge sovereignty matters, and recent policy developments that may be used to enhance it. While the barriers are real and the stakes are high, this opening chapter next situates climate change as a strategic opportunity not only for Tribes to retain cultural practices and return traditional management practices to the landscape, but for all land managers to remedy inappropriate ecological actions, and for enhanced and successful collaboration in the face of our collective need for survival. The second portion of the chapter reviews promising recent Federal initiatives and policy developments, many of which are referenced in the recommendations sections of the chapters that follow.

Tribal sovereignty over knowledge is being eroded today through a variety of factors some of which stem from cultural understandings of the world. Such differences in Native and non-Native ways of interacting and seeing the world form barriers to Tribes' abilities to maintain control over their own cultural knowledge. Chapter Two examines cultural barriers to Tribal knowledge and management exhibited by non-Native agencies, entities, academics and legal scholars. These include conceptions of the nature and use of knowledge, values, social norms, assumptions and modes of interpersonal interaction that are important mechanisms

for the erosion of knowledge sovereignty. While such cultural barriers to Tribal knowledge sovereignty and management may appear less permanent than the institutional barriers that are the subject of the next chapter, such detrimental aspects of culture are themselves largely created and reinforced by structural factors within agencies including specific legal policies and mandates, the realities of funding restrictions or institutional logics to which individuals are socialized and compelled to respond.

While the practice of traditional Tribal management, and thus the regeneration of traditional knowledge needs to be an ongoing practice in the landscape, evidence from the Karuk experience and beyond indicates that institutionalized policies and practices at national, state and regional levels also form structural barriers that thwart implementation. Explicit university and government policies regarding copyrights to traditional knowledge shared in research collaborations pose acute threats to Tribal knowledge sovereignty. Chapter Three examines how institutionalized policies concerning access to information, intergovernmental collaboration and the overall absence of applicable research describing Native experiences or impacts to Native communities work together to erode the sovereignty of Tribal traditional knowledge.

The discussion of each cultural and institutional barrier to Tribal control over management and sovereignty discussed in Chapters Two and Three are followed by one or more policy recommendations. An Appendix provides a consolidated summary of the recommendations that emerged from the specific barriers to preventing cultural appropriation and expanding the application of Tribal management on the landscape. This Appendix consists of summary sheets with the specific recommendations from Chapters Two and Three for enhancing knowledge sovereignty through mechanisms to enhance Tribal management on off-reservation lands, mechanisms to improve intergovernmental collaboration, research recommendations and enforcement of existing Tribal and public trust responsibilities.

Chapter One: Traditional Knowledge, Knowledge Sovereignty and Climate Change as Strategic Opportunity

Why does knowledge sovereignty matter? What recent policy developments may be used to enhance it? While the barriers are real and the stakes are high, this opening chapter next situates climate change as a strategic opportunity not only for Tribes to retain cultural practices and return traditional management practices to the landscape, but for all land managers to remedy inappropriate ecological actions, and for enhanced and successful collaboration in the face of collective survival. The second portion of the chapter reviews recent and promising Federal policy developments, many of which are referenced in the recommendations sections of chapters to follow.

Knowledge Sovereignty: What is at Stake?

Amidst the great and welcome interest in Tribal traditional ecological knowledge by the wider non-Tribal community lies a thorny problem: how can TEK be applied to the landscape without risking what is most sacred to Tribes? Unfortunately the loss of control of Tribal ideas and information poses a serious problem for the Karuk Tribe and beyond. It is critical for any individual or agency entity seeking to fulfill their public and Tribal trust responsibilities as federal administrators, to collaborate with Tribal managers or to engage traditional Tribal knowledge to understand this terrain. A number of excellent resources detail how cultural differences, power relations, the romantization of indigenous knowledge and the all too frequent de-contextualization of indigenous knowledge have worked together to perpetuate Native knowledge extraction as an ongoing aspect of cultural genocide (Tsosie 1996, Simpson 2004, Bowery and Anderson 2009, Jones and Jenkins 2008, Heckler 2012). Museums have centrally functioned in these negative outcomes (Lonetree 2012). The recent emphases by Universities to copyright research materials poses an immediate threat to collaboration. Discussions in Chapter Two on cultural differences in the nature and use of knowledge, as well as discussions in Chapter Three on inadequate protections of Tribal knowledge will also be of use in illustrating this process in action.

It has been said that if one looks at the arc of colonialism in North America, colonial power in the 1700 and 1800s was mobilized through the direct taking of

lives and land from Native people, during the 1800s and 1900s colonialism operated through the usurpation of minerals and lands, and for the most recent fifty to one hundred years colonialism has operated via the extraction of Native knowledge. While the connection between knowledge extraction and genocide is very real, the extraction of knowledge and ideas from Tribal communities looks very different than other forms of “taking” or “harm.” This fact has created great confusion on behalf of non-Native agency members and research scientists concerning the seriousness of the situation. Unlike the “taking” of life, land and mineral wealth, in most cases knowledge is taken by “well meaning” people who are trying to “do the right thing.” It is important therefore to offer a deeper explanation of how the Native knowledge systems are damaged by non-Native agencies, scientists and other actors. Mechanisms of cultural appropriation that erode Tribal knowledge sovereignty will be elaborated in Chapters Two and Three. Fundamental differences in understanding of the nature of knowledge between Native and Western worldviews, differences in the organizational capacity between Tribes and other management actors, and (often unconscious) underlying beliefs in the superiority of Western worldviews all work in the present day context alongside more overt institutional barriers to the enactment of traditional management to erode knowledge sovereignty.

Knowledge is fundamental to management that itself is an expression of culture. Knowledge sovereignty is an extension of cultural, social and political sovereignty. Part I of this report details the relationship of knowledge sovereignty to Native subsistence economies, cultural and spiritual practices, cultural identity, physical health and psychological well-being. We recommend further reading of the excellent and detailed literature on the central role of Western science in the project of colonialism and the corresponding ethical risks Native communities face (Bannister and Hardison 2006, Hansen and Van FLeed 2003, Hardison and Bannister 2011, Hill et al 2010, Janke 2009, Williams and Hardison 2013, Colorado and Collins 1987, Agrawal 2002, Briggs and Sharp 2004, Briggs 2005, Green 2004, Heckler 2012, Nadasdy 2003, Roy and Bicker 2000, Watson-Verran and Turnball 1995, Wildcat 2009), the ethical risks for Tribes from engaging in research with non-Native entities (Baldy 2013, Williams and Hardison 2013, Hill et al 2010, Hardison and Bannister 2011, Hansen and Van FLeed 2003, Bannister and Hardison 2006) and unfortunately, the ongoing ways that the extraction of Tribal knowledge

perpetuates cultural genocide today (see also Norgaard 2014 for more detail specific to Karuk land management struggles).

Climate Change as Strategic Opportunity

“Tribes have much to offer in helping to find solutions to the pressing challenges confronting our nation’s forests. Tribes have developed and practiced resource management strategies over thousands of years of experiential learning and have adapted to changing conditions in local ecosystems. Tribes historically managed forests, woodlands and grasslands of North America using a wide array of tools to sustain ecosystems and their communities. Fire (natural and anthropogenic) historically played a predominant role in maintaining ecosystems of culturally desired plant and animal habitats (biodiversity). More recently, Tribes have adopted western science to complement indigenous knowledge and experience as they adapted management philosophies to changing societal conditions.”

-- Intertribal Timber Council 2013, 7f

The threats that American Indian Tribes face in relation to climate change are many. Shifts in the populations of traditional foods and cultural use species, changes in the quality and abundance of those species, and even in ongoing cases, the need to relocate as island and other habitats are eroded by changing patterns of ice and sea level rise, all pose profound challenges for Tribal people (Bennett et al 2014, Figueroa 2011; Lynn et al. 2011; Shearer 2011; Voggesser 2013; Wildcat 2009). Kyle Powys Whyte (2013) describes how, at base, climate change threatens the “collective continuance” of Tribal peoples: “These challenges lead many tribes to remain concerned with what I call collective continuance. Collective continuance is a community’s capacity to be adaptive in ways sufficient for the livelihoods of its members to flourish into the future” (518).

While Native people encounter unique and often particularly urgent threats in the face of climate change, all peoples and all ecosystems around the world are at risk. Climate change evokes an urgent need to rethink many aspects of western social, economic and political systems, including western land management practices. In this moment of crisis, new possibilities for cooperation have emerged. There is a new awareness for the need to share information. Agencies are trying to work together to think about climate change – a problem that does not follow bureaucratic lines. Government agencies, the western scientific community and non-

profit land managers alike have begun to point to the importance of returning to traditional management practices (see footnote 4).

As dangerous as it is, we can thus understand the present moment as one of strategic opportunity. Kathleen Pickering Sherman and her co-authors write “The increasing pressures of global ecological crises demand that the potential of indigenous ecological knowledge be explored to restore socio-ecological resilience into natural resource management” (2010, 508). The Intertribal Timber Council (2013) writes

“Tribes, states and federal agencies collectively recognize the need to address growing threats through collaborative efforts that cross forest ownership boundaries. Insect and disease outbreaks are occurring at an unprecedented frequency and scale. Wildland fires are increasing in duration and size. These challenges are further compounded by climate change, increasing land fragmentation from residential, rural, and urban development; and loss of the infrastructure necessary to provide economic benefits essential to the ability to maintain working forests on the landscape; help sustain forest-dependent communities; and reduce costs of treatment to restore forest health and ecological processes” (7).

Legal scholar Mary Wood closed her recent address to the 2014 Tribal Environmental Leaders Summit with this statement”

“We have arrived at an unthinkable moment in time, where entire food groups are contaminated, water carries poisons, and global climate disaster threatens to destroy nearly all of Nature’s Trust. The consequences to society from actions taken by this generation of people are profound. We need all of the will and wisdom we can muster to rise to this moment. This will and wisdom will not come from the culture that brought us this crisis. Tribal leaders can voice responsibilities that echo back through millennia. They have perhaps never been heard at a more crucial time. As my colleague, Rennard Strickland, wrote, “If there is to be a post-Columbian future - a future for any of us - it will be an Indian future . . . a world in which this time, . . . the superior world view . . . might even hope to compete with, if not triumph over, technology.”

The Karuk and other Tribes across the country are working to identify how the broader interest in Tribal knowledge and practice from multiple management agencies and the general public can be mobilized in service of these mutual goals. On the mid-Klamath region in northern California where there exists an extreme threat of increased trends in fire frequency and severity in the context of climate

change, the Karuk Tribe is uniquely positioned to employ knowledge and management activities that will benefit both Tribal trust and public trust resources. Many goals in the US Forest Service's own management plan can be best achieved through recognizing the Tribal right to management. Karuk traditional knowledge can be leveraged to restore and maintain fire resilient landscapes and achieve cohesive strategies for wildland fire management. At this juncture it is however critical that the Karuk and other Tribes in similar situations retain sovereignty over TEK, not only for Tribal interests, but in order to attain the ecological outcomes desired by all.

Beyond the issues of justice, sovereignty public trust or human rights discussed in this report, there is now a growing recognition that American Indian Tribes and Tribal management techniques are often the most effective mechanism to achieve many aspects of public land management desired by all agencies. Especially in the face of climate change, enabling Tribes' abilities to use traditional management techniques may be the best way for agencies achieve their own goals on issues as diverse as protection of the wildland/urban interface, to providing habitats for fish, wildlife, and plants, combating incursion by invasive species, and supporting local economies. This is so not only because Tribes have proven techniques for maintaining ecological conditions in the face of intensive fuel loading and past wildfire suppression, Tribes frequently also have less bureaucratic structures than other agencies. Tribes have existing authorities for many management actions under shared jurisdiction within existing Federal trust responsibilities that ought to be more fully implemented. In other cases, it will be necessary to increase Tribal authority within the Federal structure.

"Tribes are in a unique position to press for management actions to protect their rights and interests given the fiduciary trust responsibility of the United States and authorities such as the Tribal Forest Practices Act. As political sovereigns, Tribes are able to practice stewardship and apply traditions, practices, and accumulated wisdom to care for their resources, exercise co-management authorities within their traditional territories, and strongly influence and persuade other political sovereigns to protect natural resources under the public trust doctrine"

-- Intertribal Timber Council 2013, 15

The Karuk Tribe has been struggling to maintain knowledge of and the ability to carry out traditional management techniques since the arrival of non-Native settlers. Interest in Tribal TEK creates a relatively supportive political environment

that can be conducive to a return of traditional management activities – thereby benefitting Tribal culture, non-Indian people and forest ecosystems.

Recent Initiatives Providing Platforms To Enhance Knowledge Sovereignty

A number of recent legislative actions, policy documents, resolutions and legal developments hold promise for providing platforms for the retention of knowledge sovereignty. Many of the initiatives introduced here form groundwork for the development of recommendations as they apply to the specific barriers to knowledge sovereignty that are detailed in Chapters Two and Three.

United Nations Declaration of the Rights of Indigenous Peoples

The opening of the 2007 United Nations Declaration of the Rights of Indigenous Peoples recognizes “that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment.” More specifically, Article 31 section 1 concerns the fact that:

“Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.”

And Article 11, 2 indicates:

“States shall provide redress through effective mechanisms, which may include restitution, developed in conjunction with indigenous peoples, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs.”

While UN Resolutions are non-binding agreements, the fact that the United States has endorsed this Declaration can be a useful leverage point for Tribes seeking to return Tribal management to landscapes.

National Cohesive Wildland Fire Management Strategy

Extreme wildfires in the west in the 2008 fire season led to the passage of the 2009 Federal Lands Assistance and Management Enforcement Act or “FLAME Act” that in turn led to the development of the National Cohesive Wildland Fire Management Strategy (NCWFMS) NCWFMS is a “collaborative effort of diverse Tribal, federal, state and private stakeholders working to develop an effective plan to address our nation’s wildland fire and forest health concerns.” Each of the three key inter-related goals of the NCWFMS -- restoring and maintaining resilient landscapes, creating fire-adapted communities, responding to wildfires, provides a context and foundation for the protection of knowledge sovereignty, and the expansion of Tribes’ abilities to manage in “off reservation” lands. For example, one key recommendation of the NCWFMS is to “Expand collaborative land management, community and fire response opportunities across all jurisdictions, and invest in programmatic actions and activities that can be facilitated by Tribes and partners under the Indian Self-Determination and Education Act (as amended), the Tribal Forest Protection Act, and other existing authorities in coordination with the UN Declaration on the Rights of Indigenous Peoples” (2012, 5).

The NCWFMS acknowledges the significance of indigenous management of the landscape, and that its absence is both an ecological concern and a threat to indigenous cultural identity. Further specific items within these efforts such as the emphasis on “Community Wildfire Protection Plans” where communities and community values may be defined at the local level, an emphasis on “middle lands” or “middle ground,” areas between wildland-urban interfaces and “backcountry” as an area of concern for fuels treatments, and a clear emphasis throughout written materials on coordination and cooperation between entities including Tribes, and the need to find new avenues to achieve the above are each potential leverage points for the expansion of Tribal knowledge sovereignty through the management of off reservation lands. For example, according to Phase III of the National Cohesive Wildland Management Strategy Regional Science-Based Risk Analysis

Report (2012) “Adjacent counties, states, tribes, and municipalities should share information and coordinate plans across boundaries for a seamless approach to wildfire planning” (80).

The 2012 NCWFMS also contains language that may be useful for expanding the range of federal contractual options: “Federal end-result contracts, compacts and/or agreements can be entered into by Tribes, communities, states, and for-profit or non-profit organizations to conduct fuels and restoration activities on nearby BLM or Forest Service lands” 2012, p. 33. Similarly, the fact that Phase II of the National Cohesive Strategy for Wildland Fire Management requires use of the most “effective combination of agreements, contracts and compacts” to conduct a wide range of activities from management to planning or re-assessment may provide an avenue for the expansion of Tribal management. Chapter Three will discuss how these efforts can be used to overcome institutional barriers to the expansion of Tribal management.

1994 Tribal Forest Protection Act and 2013 Effectiveness Review by Intertribal Timber Council

The Tribal Forest Protection Act, P.L. 108-278, (TFPA) was enacted in 2004 following intense wildfire activity in the West. The TPFA was specifically designed to reduce institutional barriers to Tribal “off reservation management” in order to protect Tribal trust resources from fire, disease and “other threats coming off of Forest Service or BLM lands” and to offer a mechanism for collaboration to address climate change on Tribal lands (Voggesser et al 2013, 623). The TPFA authorizes the Secretaries of Agriculture and Interior to give consideration to Tribally- proposed stewardship contracting or other projects on U S Forest Service or Bureau of Land Management (BLM) lands bordering or adjacent to Indian trust land. As noted by the Intertribal Timber Council “Tribes have reserved rights to fish, hunt, and gather on millions of acres of land administered by the Forest Service. Tribes are becoming increasingly concerned that deteriorating conditions on Forest Service lands threaten their ability to protect on-reservation resources held in trust by the United States on their behalf and to exercise reserved rights” (ITC 2013, 2).

“In recognition that the United States has a fiduciary trust responsibility to protect Tribal lands, resources, and rights, the TFPA enables Tribes to propose projects to address hazardous conditions on lands administered

by the FS and the Bureau of Land Management (BLM), which border or are adjacent to Tribal trust lands or resources. The TFPA could facilitate treatment and collaboration between the FS, Tribes and BIA to manage and restore healthy forests on the landscape” (ITC 2013, 2).

However, a recent review of the effectiveness of the Act by the Intertribal Timber Council and the U.S. Forest Service notes that in the nearly 10 years the Act has been in place only six successful projects, accounting for less than 20,000 acres have been completed. The authors conclude: “The promise of the TFPA to provide a means for Tribes to work with federal agencies to restore forests and reduce forest health threats at a landscape level remains unfulfilled” (2013, 3). The Act as well as the Intertribal Council “Fulfilling the Promise Report” that evaluates it are each useful tools for engaging cultural barriers discussed in Chapter Two and the institutional barriers that will be discussed in Chapter Three.

Executive Order 13175:

Consultation and Coordination with Indian Tribal Governments.

In November of 2000 President Clinton signed Executive Order 13175 on Consultation and Coordination with Indian Tribal Governments. This order establishes that *“agencies shall adhere, to the extent permitted by law, to the following criteria when formulating and implementing policies that have tribal implications:*

(a) Agencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments.

(b) With respect to Federal statutes and regulations administered by Indian tribal governments, the Federal Government shall grant Indian tribal governments the maximum administrative discretion possible.

(c) When undertaking to formulate and implement policies that have tribal implications, agencies shall:

(1) encourage Indian tribes to develop their own policies to achieve program objectives;

(2) where possible, defer to Indian tribes to establish standards; and

(3) in determining whether to establish Federal standards, consult with

tribal officials as to the need for Federal standards and any alternatives that would limit the scope of Federal standards or otherwise preserve the prerogatives and authority of Indian tribes.”

2009 Omnibus Act

The 2009 Omnibus Act authorizes the transfer of funds from the U S Forest Service appropriations budget, to the Department of Interior. From there funds could be transferred directly to a specific Tribe for the purpose of wildland forest management thereby enabling Tribal access to needed economic resources for utilization of traditional management. Material below is quoted from 123 STAT. 733 On “WILDLAND FIRE MANAGEMENT (INCLUDING TRANSFERS OF FUNDS)

“for necessary expenses for forest fire pre-suppression activities on National Forest System lands, for emergency fire suppression on or adjacent to such lands or other lands under fire protection agreement, hazardous fuels reduction on or adjacent to such lands” and “Provided further, That the Secretary of the Interior and the Secretary of Agriculture may authorize the transfer of funds appropriated for wildland fire management, in an aggregate amount not to exceed \$10,000,000, between the Departments when such transfers would facilitate and expedite jointly funded wildland fire management programs and projects.”

The ability to directly transfer funds to Tribal budgets is an important mechanism to achieve the important goal of expanding collaborative land management. This mechanism to enhance tribal management is especially beneficial in light of limits in Tribal capacity as discussed in Chapter Three.

Tribal Authority and The Clean Air Act:

Western Regional Air Partnership Joint Forum on Fire Emissions.

The 2005 Western Regional Air Partnership Joint Forum on Fire Emissions relates to Tribal Authority under the Clean Air Act. This document contains guidance on categorizing natural vs. anthropogenic emissions sources, and identifies a process for classifying Tribal cultural burns as a natural emissions source along with wildfires (prescribed fire is an anthropogenic source). The categorization of Tribal

cultural burns for maintenance purposes as natural means that Tribes do not need to obtain permits or to conduct planning to carry out cultural burns, thereby alleviating the costly and bureaucratic barriers that presently reduce Tribe's ability to use often limited resources in the most effective manner (see Chapter 3). As Bill Tripp, Karuk Department of Natural Resources states "Once forest stands are restored to the condition that you are looking for, a pre-European condition, then you can use prescribed fire to maintain that" This key document has the potential to be a powerful tool for maintaining Tribal sovereignty regarding use of fire and expansion of TEK in the landscape but has yet to enter policy or regulation. The formal adoption of this idea into policy and regulation would also serve as explicit acknowledgement of Tribal sovereignty and jurisdictional authority over air resources.

Public and Tribal Trust Litigation

"As the original sovereigns on this continent, tribes represent the original trustees. Their remarkable long-term stewardship of resources – sometimes sustained over the course of millennia – provides a supreme example of ecological fiduciary care."

Mary Christina Wood, 2014, 14

Tribal trust is "a principle that arises from the Native relinquishment of land in reliance on federal assurances that retained lands and resources would be protected for future generations. It bears rough analogy to nuisance and trespass law. Ownership of land carries corollary rights of government protection-the right to seek judicial redress against harm to property. The Indian trust responsibility is protection for property guaranteed on the sovereign level, from the federal government to tribes" (Wood, 2003). Through their legal scholarship Mary Wood and other legal scholars stress the importance of reminding government decision makers of their legal obligations as fiduciaries (see also Peevar 2009, Tsosie, 2003, 2013). The concept of tribes as co-trustees or co-tenant of natural resources also exists within what is known as the public trust framework.

In the Pacific Northwest treaty fishing cases, courts have recently described Tribes and states as analogous to "co-tenants" of a common asset (their shared

fishery).⁷ Using the same logic, we could think of Tribes as co-trustees with respect to all shared resources, including migratory fish and wildlife, atmosphere, and waters that flow off the reservation. . . . The Ninth Circuit, after characterizing the Tribes and states as “co-tenants” in the fishery, said,

Cotenants stand in a fiduciary relationship one to the other. Each has the right to full enjoyment of the property, but must use it as a reasonable property owner. A cotenant is liable for waste if he destroys the property or abuses it so as to permanently impair its value. A court will enjoin the commission of waste. By analogy, neither the treaty Indians nor the state on behalf of its citizens may permit the subject matter of these treaties to be destroyed (as quoted in Wood 2014, p. 15).

Just as they have with the case of the shared fishery of the Columbia River Basin, Tribes can assert their standing as co-tenants of water, forests and more. But because they are not currently recognized, these rights must be asserted through legal action. Such developments would assist primarily with the institutional barriers described in Chapter Three.

2013 Creation of White House Council on Native American Affairs and Interagency Memorandum of Understanding on Sacred Sites and Sacred Landscapes

The 2013 creation of the White House Council on Native American Affairs, and the 2012 interagency Memorandum of Understanding (MOU) on the protection of Indian Sacred Sites are important events in the pathway toward indigenous knowledge sovereignty. This landmark Memorandum of Understanding is designed to strengthen the protection of Indian sacred sites. It was signed by the Advisory Council on Historic Preservation and four cabinet-level departments (the Department of Agriculture, Defense, Energy, Interior). The MOU commits the participating agencies to “work together on developing guidance on the management and treatment of sacred sites, on identifying and recommending ways to overcome impediments to the protection of such sites while preserving the sites’ confidentiality, on creating a training program for federal staff and on developing outreach plans to both the public and to non-Federal partners.” This MOU may be

⁷ Puget Sound Gillnetters Ass’n v. U.S. Dist. Court for W. Dist., 573 F.2d 1123, 1126 (9th Cir. 1978) (explaining that the treaty established “something analogous to a cotenancy, with the tribes as one cotenant and all citizens of the Territory (and later of the state) as the other.”).

useful in addressing institutional barriers to Tribal management as discussed in Chapter Three.

Guidelines for Considering Traditional Knowledges in Climate Change Initiatives

In 2014, an ad hoc group of Tribal leaders, Tribal scholars and others came together in response to a request from the Department of Interior Advisory Committee on Climate Change and Natural Resources Science to develop “*Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*.” The Guidelines is an informational resource for Tribes, agencies, and organizations across the United States with an interest in understanding traditional knowledges in the context of climate change. The purpose of the Guidelines is to provide foundational information on the role of traditional knowledges in Federal climate change initiatives, to describe the principles of engaging with Tribes on issues related to traditional knowledges, and actions for Federal agencies and Tribes to consider that will establish processes and protocols to govern the sharing and protection of traditional knowledge. The Guidelines are intended to foster opportunities for indigenous peoples and non-indigenous partners to braid traditional knowledges and western science in culturally-appropriate and Tribally-led initiatives. These Guidelines will be especially useful in addressing many of the cultural barriers to traditional management and knowledge sovereignty discussed in Chapter Two.

Recent National Congress of American Indian Resolutions

Seven recent resolutions from the National Congress of American Indians outline key issues regarding knowledge sovereignty and native management and may provide leverage points for action.

1) Resolution #REN-13-035, 2013 Request for Federal Government to Develop Guidance on Recognizing Tribal Sovereign Jurisdiction over Traditional Knowledge

This resolution references and builds up *Article 11, 2* of the United Nations Declaration of the Rights of Indigenous Peoples that: “*States shall provide redress through effective mechanisms, which may include restitution, developed in conjunction with indigenous peoples, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation*

of their laws, traditions and customs.” Language in the resolution refers to problems in cultural and other differences in the appropriate use and relationship of people to knowledge and calls for the Federal government to work with Tribes to develop appropriate guidelines:

“WHEREAS, the emphasis on the utilization of traditional knowledge should focus on support for its application by tribes to solve environmental and climate problems without the need for sharing it; and WHEREAS, in those cases where traditional knowledge may be shared by the tribes, measures need to be developed to ensure that it is used appropriately, that tribes are protected in policy and law against its misuse and that the tribes are able to determine and receive benefits from its use; and NOW THEREFORE BE IT RESOLVED, that the Federal government work with tribes to develop appropriate guidance on how to approach tribes for access to traditional knowledge, while also respecting the right of each tribe to develop its own terms of access; and WHEREAS, the emphasis on the utilization of traditional knowledge should focus on support for its application by tribes to solve environmental and climate problems without the need for sharing it; and WHEREAS, in those cases where traditional knowledge may be shared by the tribes, measures need to be developed to ensure that it is used appropriately, that tribes are protected in policy and law against its misuse and that the tribes are able to determine and receive benefits from its use; and NOW THEREFORE BE IT RESOLVED, that the Federal government work with tribes to develop appropriate guidance on how to approach tribes for access to traditional knowledge, while also respecting the right of each tribe to develop its own terms of access; and NOW THEREFORE BE IT RESOLVED, that the Federal government work with its funding agencies to ensure respect for and protection of these rights in all federally-funded projects;”

2) #REN-13-065 Protection and Preservation of Culturally Significant Sites, Areas, and Landscapes

Note that this resolution cites the 2013 creation of the White House Council on Native American Affairs and the recent interagency MOU on the protection of Indian Sacred Sites, which is also referenced in the prior section.

WHEREAS, the June 26, 2013 Executive Order established the White House Council on Native American Affairs and under section 3(e), such Council shall coordinate its outreach to federally recognized tribes through the White House Office of Public Engagement and

Intergovernmental Affairs; and . . . WHEREAS, the United States has committed to honoring the government to government relationship between Native American Tribes and the federal government and ensuring that treaty obligations are met; and relationship with Indian Country, four cabinet-level departments joined the Advisory Council on Historic Preservation in releasing an action plan to strengthen the protection of Indian Sacred sites, and provide greater Tribal access to their heritage area. The interagency plan is required by the Memorandum of Understanding signed in December 2012 by the Department of Agriculture, Defense, Energy, Interior and the Advisory Council on Historic Preservation regarding coordination and collaboration for the protection of sacred sites; . . .

NOW THEREFORE BE IT RESOLVED, that NCAI urges the United States government under the MOU's participating agencies engage in a meaningful review to expand the 106 process in all permitting to include the option of sacred site regional impacts; and that the 106 be expanded to have the capacity to stop a permitted project that will destroy sacred sites that include the ancestral Treaty fishing and hunting and gathering rights, indigenous inherent rights and resources, life way, and will destroy sacred places, areas, landscapes, waterways and their commitment to:

- New development of energy that the MOU provides a clear recognition and address a plan with tribes impacts one treaty over another treaty right, as well as any other federal right that may be impacted by the energy development, transportation and exportation based on the impact to sacred sites, areas, landscapes, and seascapes.*
- Sustainable stewardship and protection of their traditional lifeway.*
- Long-term protective management of these landscapes and seascapes*
- Promoting Tribal unity and defeating the efforts of outside companies or agencies to divide the tribes against each other.*
- Preservation, protection and application of traditional knowledge and resource management systems to the natural environment assumes and assures a sustainable yield;"*

3) #TUL-13-006 Requiring a Federal-Tribal Joint Review of Sacred Places Taken Away from Native Peoples

*"NCAI calls on the President to direct federal entities to review and report on the manner in which they've acquired jurisdiction regarding Native American sacred places and whether such jurisdiction was asserted and sacred places taken with or without Native peoples' free, prior and informed consent, and whether the federal government disposed of sacred places or turned over control of them to others with or without Native peoples' free, prior and informed consent; and **BE IT***

FURTHER RESOLVED, that federal entities, in collaboration with the Native nation(s) with traditional religious interest in the sacred place, prepare recommendations for protection of the sacred place, through existing laws and policies, through a federal-Tribal agreement to co-manage or jointly steward the sacred place, through transfer and return of the sacred place to the Native nation(s), or through a mutual agreement to seek congressional approval of a plan to protect the sacred places; and **BE IT FURTHER RESOLVED**, that this directive be issued as quickly as possible, so that this federal-Tribal collaborative work may begin to rescue sacred places from ongoing or pending desecration;

4) National Congress of American Indians (2012). Resolution #LNK-12-023. Federal Investigation of Observance of Federal Trust Responsibility to Protect Native American Ancestral Lands and Cultural Resources.

This resolution calls for more accountability concerning the state of Federal encroachment on Native sacred sites, the gathering of data on the state of the problem via formal investigation by the Government Accountability Office into civil and criminal protections to protect Indian nations from “encroachment onto sacred sites” and for the drafting of Congressional legislation to protect Tribes from various levels of intrusion into sacred sites including more effective consultation. Some excerpts of the resolution are below:

NCAI hereby holds that Indian Nations are entitled to free, prior and informed consent of all actions, records and plans that may affect their sacred sites, air shed, water shed, natural resources, ancestral remains . . . BE IT FURTHER RESOLVED, that the GAO and Congress work with the Indian Nations . . . to assist with outreach for data collection to all federally recognize tribes . . . and BE IT FURTHER RESOLVED, that the NCAI hereby insists that members of Congress draft legislation that allows tribes to (1) meet standing requirements, (2) obtain immediate restraining orders to halt noncompliant projects, and (3) be afforded the proper relief for civil and criminal damages when private or government actions, with or without full compliance with project impact assessments, cause irreparable harm to the integrity of ancestral lands and cultural resources of Indian Nations. . . . and BE IT FURTHER RESOLVED, that the NCAI strongly urges Congress to immediately improve tribal consultation and BE IT FURTHER RESOLVED, that NCAI demands a more streamlined the processes in which Indian Nations interact with the federal government by incorporating the following:

- Increase authority, oversight and intervention by the Advisory Council on Historic Preservation (ACHP);
- Develop with the DOJ, DOI, EPA a jurisdictional trust responsibility to protect tribes from encroachment on their sacred sites, ancestral burial remains, air shed, water shed and natural resources
- Require tribal consultation prior to any cultural resources or archaeological research on all federal projects. . .

5) National Congress of American Indians (2010) Resolution #ABQ-10-086.
Ensuring Tribal Equity in the Dept. of Interior's Climate Change Adaptation Initiative.

This and the next two NCAI resolutions concern climate change specifically, underscoring the importance of traditional knowledge sovereignty in this context. Resolution #ABQ-10-086 focuses on the importance of Tribal participation in Federal climate adaptation activities. Of particular concern in this resolution is the lack of inclusion of Tribes in the Climate Change Adaptation Initiative that the Department of the Interior began in 2009 as a strategy for the nation to effectively help natural resources adapt to the impacts of climate change. The resolution calls for specific funding to go to Tribes for participation in this effort.

6) NCAI Resolution #PDX-11-036: Increasing Tribal Participation in Climate Adaptation.

Similarly to the resolution discussed above, this resolution calls for strong Tribal participation in the development of all policies for adaptation to climate change.

WHEREAS, climate change is a threat to American Indians/Alaska Natives' culture, resources, and well-being that is currently impacting hunting, fishing, gathering, economic infrastructure, reservation locations, usual and accustomed areas and natural resources; and **WHEREAS**, indigenous nations are in a unique and venerable position in regards to climate change, as their land bases provide few opportunities to relocate or expand or cope with changing climate; and **WHEREAS**, tribal rights established under treaties, executive orders and other legal instruments are fixed to specific parcels of land, so that it is unclear what tribal rights to resources might shift away from their reserved lands; and **WHEREAS**, furthermore, tribal rights to hunt, fish and gather that are established and guaranteed under treaties, executive orders, and other legal instruments may be rendered moot by these shifts, or may need to be adapted by transferring harvesting rights to non-traditional species; and . . . **NOW THEREFORE BE IT RESOLVED**,

that the NCAI urges the United States, its agencies, scientists and all relevant organizations to include Tribes in all climate change policies, programs, and activities from the very start, and at all levels; and recognize and respect Tribal traditions, ordinances and expectations regarding access to and use of traditional ecological knowledge, based on prior and informed consent; and build and enhance Tribal capacity to address climate change issues; to provide adequate and proportional funding for Tribal climate change adaptation and mitigation; and consult with Native Sovereign Nations as decision makers with all policy, regulations and laws related to climate change effects on important tribal cultural, natural and sacred resources . . .

7) NCAI Resolution #REN-13-020: Adopting Guidance Principles to Address the Impacts of Climate Change.

This last resolution describes the need for NCAI evaluation of the effectiveness of the Executive Order 13175 on Consultation and Coordination with Indian Tribal Governments and Secretarial Order 3289 Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources. The resolution also calls for the creation of Tribal Climate Change Task Force, made up of Tribal government representatives and others, in order to create and implement a plan of action regarding climate

. . . NOW THEREFORE BE IT RESOLVED, that NCAI commits to collaborating with ATNI to develop an action plan which lays guiding principles and action steps a to address the impacts of climate change upon tribal governments, cultures, and lifeways; that will protect and advancing our treaty, inherent and indigenous rights, tribal lifeways and ecological knowledge; and. . . BE IT FURTHER RESOLVED, that NCAI collaborates with ATNI and commits to create a Tribal Climate Change Task Force, composed of tribal governments, intertribal organizations, and non-tribal partners to develop and implement the plan of action . . .

This is not an exhaustive list, but taken together these recent policy developments, declarations, and NCAI resolutions provide a valuable foundation for actions to preserve Tribal knowledge sovereignty, advance Native land management and enact the application of traditional knowledge in the landscape. The next two chapters will describe the challenges Tribes face in maintaining sovereignty over knowledge and

suggest how these and other recent policy developments may be used to leverage forward momentum.

Chapter Two: Cultural Barriers to the Maintenance of Knowledge Sovereignty

"You do a paper on TEK and we talk about specific practices, you write them down on a piece of paper and then the Forest Service thinks that they can take that. "Okay, we paid for this under a contract for you guys to develop this, so now we are going to take this and apply it." Just the notion that they can apply those things, within their structure -- within the boxes that they have -- as if they just knew what they were. "Tell us what they are, and if you describe them well enough then we can apply those things." But they can't just apply those concepts, because what they require is cultural practices of a land-based people. They must be used by people who are on the land, not people who are separate from the land as part of a government agency. Government agencies still don't see themselves as part of the land. They don't see themselves that way, and they shouldn't see themselves that way because they are not!"

-- Leaf Hillman, Director Karuk Department of Natural Resources

Cultural Barriers to the Maintenance of Knowledge Sovereignty

- ***Conceptions of the Nature and Use of knowledge,***
- ***Conceptions of the relationship between people and "nature,"***
- ***Weak or non-existent interpersonal relationships between individuals in Tribes and Federal or other non-Native agencies***
- ***Lack of Cross Cultural Knowledge, Knowledge of specific local Tribal priorities and Tribal trust responsibilities.***

Tribes often lose control of traditional knowledge in the course of what appear to be unconscious assumptions and everyday actions of non-Native researchers, members of agencies and institutions. Traditional ecological knowledge is misappropriated and misapplied through such actions. We can think of these as 'cultural barriers' to the maintenance of Tribal knowledge. Examples include differences between Native and non-Native conceptions of the nature and use of knowledge, values, social norms, assumptions and modes of interpersonal interaction are important mechanisms for the erosion of knowledge sovereignty. While such cultural barriers may appear less permanent than the institutional barriers that are the subject of the

next chapter, misfits between Native and non-Native ways of seeing and doing are themselves largely created and reinforced by structural factors within agencies and institutions. Specific legal policies and mandates, the realities of funding restrictions or institutional logics are institutional forces to which individuals are socialized and compelled to respond. For example the frequent movement of personnel in agencies such as the Forest Service, is neither a policy mandate or funding constraint, but results from individuals' responding to institutional logics and social norms of individual advancement rather than commitment to place and community. The result is that Forest Service staff are unable to develop the deeper interpersonal relationships in the communities where they work that are essential for cross cultural understanding. New people who come into Karuk territory are unfamiliar with the existing Tribal context on the Klamath, government to government relationships in the context of off-reservation lands, local Tribal land management priorities and more – all of which are identified in the 2012 National Congress of American Indians (NCAI) report on best practices for conducting research with Tribes (See Appendix A).

This chapter draws upon the experiences of Karuk Tribal members and larger literature in the field to discuss four categories of “cultural” barriers that are presently eroding Tribal knowledge sovereignty: 1) differences between Native and non-Native conceptions of the nature and use of knowledge, 2) differences in conceptions of the relationship between people and “nature,” 3) weak or non-existent interpersonal relationships between individuals in Tribes and Federal or other non-Native agencies, and 4) lack of cross cultural knowledge, knowledge of history, knowledge of specific local Tribal priorities and knowledge of Federal Tribal trust responsibilities by individual non-Native researchers, agency and staff.

1) Conceptions of the Nature and Use of Knowledge

As discussed in Chapter One and indicated in the opening quote by Director of the Karuk Department of Natural Resources Leaf Hillman, a significant factor in the erosion of Tribal knowledge sovereignty comes from the vastly different conceptions of the nature and use of knowledge in Native and non-Native cultures. Legal Scholar Rebecca Tsosie (2007) describes how in Western understandings, knowledge is generated by individuals who have autonomy in determining whether to share it. Once knowledge is shared, it is free for all to use, with only limited exceptions. By contrast, “within Tribal communities, there may be an assumption

that knowledge is part of the group's overall identity, but that certain members have the duty to keep the knowledge on behalf of the group and that it would be inappropriate for such individuals to share the knowledge, even with other members of the group" (see also Harding et al 2012). As Tsosie writes, "Additional challenges may center on trust, data ownership, and sovereign rights. For example, there may be differences between conceptions of how knowledge may be generated, used, shared, and, ultimately, "owned" (ibid, see also citations noted in footnote #2 on page 8 of this report).

One very serious threat to Tribal knowledge sovereignty concerns not only mandatory disclosure requirements that may come when funding is received from Federal agencies; also Universities and other research entities with whom Tribes may be interested to collaborate seek to obtain outright copyright of Tribal knowledge. This trend poses a particularly extreme and overt threat to knowledge sovereignty.

While non-Native agency practitioners and western scientists have assumed that "knowledge" of how to burn the forest or how to manage the fisheries can be described by Karuk people, shared in various agency processes and then applied by multiple actors in different contexts, this misunderstanding has generated frustration on both sides. As Leaf Hillman, Director of the Karuk Department of Natural Resources recounts:

Back in the 90s, the Karuk Tribe collaborated with the Forest Service on a demonstration project at Ti Bar that was designed to demonstrate the effectiveness of traditional Karuk practices to restore the health and diversity to previously mono-cultured timber harvest plantations. In the first phase of that project, Tribal practitioners developed specific cultural prescriptions for those targeted demonstration units. During the implementation phase, Karuk Tribe utilizing those prescriptions treated the first demonstration unit while the Forest Service, utilizing the very same prescription on four demonstration units. One thing we were successful at demonstrating was that the Karuk parcel was the only unit to meet the desired objectives: all four of the Forest Service's failed.

While the non-Native world sees "people" as separate from "nature," and "knowledge" as an abstraction that can be transferred across generic landscapes or multiple "users," Karuk knowledge of the landscape is inseparable from the practice

of Karuk culture. Knowledge is embedded in and emerges from the practice of lived experience and the practice of traditional management (see also McGregor 2005). And whereas knowledge in Western science has emerged as antithetical to religious cosmologies, traditional knowledge entails specifically spiritual components and responsibilities. Deborah McGregor (2008, 145) for example, argues that traditional knowledge involves "relationships between "knowledge, people, and all Creation (the 'natural' world as well as the spiritual)...TEK is viewed as the process of participating (a verb) fully and responsibly in such relationships, rather than specifically as the knowledge gained from such experiences. For Aboriginal people, TEK is not just about understanding relationships, it is the relationship with Creation. TEK is something one does." Whereas Western science strives to describe universal principles, Tribal knowledge may be particular to specific places and seasons. Leaf Hillman notes "Traditional Ecological Knowledge is very specific: the solution to a landscape management practice may vary from one watershed to the next." As Voggesser et al. (2013, 623) describe, "TEK is as much about what to look for, what questions to ask, and how to go about research in a collaborative manner, as it is an additional form of data." Traditional knowledge can also be very intuitive, as Hillman explains:

When working on a collaborative fisheries habitat project some years ago, we had all the agencies' fisheries biologists teamed up with a Tribal practitioner. In reviewing the restoration project on the ground, we were attempting to enhance juvenile habitat for Coho salmon in a tributary to the Klamath River by installing recently harvested trees into the stream – whole trees – to create more habitat for fish. At first glance at the work the agencies had done, the Tribal practitioner immediately recognized that the project couldn't possible meet the objectives of the project because they had dropped a live oak into the tributary. Intuitively, the practitioner understood that this wouldn't work because live oak limbs and leaves are used to build fish dams due to properties that repel fish – this makes it easy to herd them.

Western science and traditional ecological knowledge are not inherently incompatible, indeed they are increasingly being used side by side. What is necessary for both knowledge sovereignty and any such collaborations is that non-Native actors understand that these two knowledge systems do have fundamental cosmological differences. There are many excellent resources detailing these

differences (see e.g. Enersto et al, 2011, Mason et al 2012). These and other cultural differences in the appropriate uses of knowledge and conditions under which it would be appropriately shared are noted in the recent National Congress of American Indians resolution on Traditional Ecological Knowledge quoted at length in Chapter One. See especially the 2014 *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*. Table 1 below summarizes some of the differences that have been relevant in the creation of confusion between the Karuk Tribe and other non-Native entities in the mid-Klamath region.

Table 1: Some Cosmological Differences Between Traditional Ecological Knowledge and Western Science That have Created Confusion on the mid-Klamath region	
Knowledge is rooted in the landscape, in specific place and time	Knowledge comes in isolated pieces “facts” that can be cut up in parts or added up in different combinations
Knowledge is specific, associated with particular people, place and time	Knowledge is universal, universal knower
Knowledge is cultural, cultural practice	Knowledge is universal
Spiritual component of knowledge	Knowledge is secular

Leaf Hillman describes how there have been instances whereby the US Forest Service and other entities have employed or attempted to employ techniques derived from Karuk management (e.g. concerning prescribed burning). Yet these efforts have been carried out improperly and without proper credit to the Tribe.

When we worked with the Forest Service on a project to reduce the fir canopy that was suppressing the growth of black oak, we gave specific instructions that would preserve co-dependent species such as mushrooms. Instead of carrying out these clear instructions, the Forest Service proceeded to use heavy equipment to push the slash into large piles that they set on fire. These naturally produced too much heat to do any good, and the damage to the sites was significant.

In other cases, the lack of clear protections and process regarding Tribal knowledge has inadvertently resulted in cultural appropriation. Differences in cultural approach and lack of acknowledgement are exacerbated on the ground by differences in institutional power. Other management entities on the mid-Klamath have greater structural capacity than the Karuk Tribe in the form of monetary resources, staff, equipment and the like. Entities with more capacity are able to apply for grants, communicate activities to outside world and receive credit for innovative ideas that are in fact rooted in Tribal knowledge. This situation makes it very easy for “good ideas” that emerge from Tribal TEK to be picked up and used by well meaning non-Native actors who then receive credit for the ideas and may even begin to feel ownership of them. There are many excellent resources for best practices in working with Tribes. The latest material is consolidated in the *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*. See also Laughline, 2013, Talaki 2007, Tamang 2005, Taniguchi et al 2012, Alexander et al 2004, Bannister and Hardison 2006, Hardison and Bannister 2011, Hansen and an Fleed 2003, Hill et al 2010, Mason et al 2012, Harris NCAI 2012).

RECOMMENDATION: Require US Forest Service and other Agency Trainings on working with Tribes, Cross-Cultural Communication, the Colonial legacy of the US Forest Service, Tribal Management Priorities and the Public and Tribal Trust Responsibilities of Federal agencies.

2) Conceptions of the Relationship Between Humans and “Nature”

Assumptions that humans and nature are separate in turn play out in a myriad of assumptions about how the forest is to be used. The US Forest Service model is of forests as a site outside of society from which resources can be extracted for the benefit of the public. This assumption is in sharp contrast to the reality of many forests as places where people live, obtain their food and water, work, pray, acquire an education, or carry out any number of aspects of daily life. Forest Service assumptions that forests and people exist in separate physical spheres result in the flawed expectations that people are not impacted by forest policy, except perhaps through employment as evidenced in the extremely inadequate Social Impacts sections of Environmental Impact Statements and other NEPA documents. These

assumptions have also led to an emphasis on commodity extraction from forest ecosystems rather than the sustained subsistence, cultural and ceremonial uses that have characterized Native relationships with forests for millennium. For example, Anthropologist Kathleen Pickering Sherman and co-authors (2010) describe how such non-Native cultural values then become structural constraints to the enactment of indigenous stewardship for Lakota people on the Pine Ridge Reservation “Federal, state and Tribal political resource management policies favor commodity agricultural practices over individual household subsistence and self-sufficiency” (510). The authors further note that “Market based resource use and scientific management have systematically stripped the landscape of the social, relational, and spiritual perspectives of the Lakota” (511).

The above-mentioned cultural assumptions about the world translate into research priorities, research questions, data and peer-reviewed articles that in turn re-shape knowledge around non-Native worldviews. Research priorities and existing literature almost universally under-emphasize the impacts of management policies on Tribal people, in large part because they fail to see that humans actually are part of the landscape. The near total absence of data or peer reviewed papers from the perspective of Native peoples on topics including subsistence uses of the forest, social and cultural benefits of traditional activities, social impacts of federal policies such as fire exclusion and more works to further justify and legitimize non-Native perspectives. Without data or knowledge of the reality of the much wider and numerous social and economic aspects of forest use by Native as well as non-Native people, the ‘social impacts’ sections drawn up in NEPA documents are grossly inadequate. In contrast, Bill Tripp notes how he and others have worked to assert the presence of people in the forest landscape: “Within the National Cohesive Wildland Fire Management Strategy it says that “all decisions shall be based on social, ecological and economic factors of the local community” so this kind of thing can get to establishing those factors. So we are establishing that social side as completely integrated into the ecological and economic components.”

RECOMMENDATION: We recommend that land management agencies, academic institutions and other entities, including the NPLCC, BIA, USDA, and National Science Foundation fund research in the following areas. **Research projects and questions should be initiated, designed and carried out by Tribes and their partners wherever possible.**

- Expand study of the socio-economic benefits of Tribal management for Native and non-Native communities. Expand research on relationships between various ecological conditions and human social, health, psychological and political outcomes, especially as relevant to Tribal Territories.
- Expanded study of the complex impacts of multi-institutional agency responses to climate change and “the laws of other sovereigns” on Tribal sovereignty, especially for Tribes seeking to manage off-reservation lands. In the face of rapidly changing policy terrain tribes without sufficient capacity face erosion of political as well as knowledge sovereignty.
- Identify and/or enable an efficient combination of grants, agreements, contracts, and compacts with Tribes to conduct a wide range of management activities from management planning, through implementation, research/monitoring, and adaptation as per recommendations in Phase II of the National Wildland Cohesive Fire Management Strategy.
- Research on relationships between Tribal forest management activities such as prescribed fire/cultural burning, and balance of carbon emissions, below ground carbon storage, other forms of carbon sequestration, stream shading, food, fisheries, fiber, water quality, and other benefits.

3) Weak or Non-existent Interpersonal Relationships

In the face of profound cross-cultural differences in communication, values and worldview it is interpersonal relationships and rapport if anything, that can bridge understanding and facilitate intergovernmental collaboration. Relationships can allow for a willingness on both sides to “go the extra mile” to find solutions. Good cross-entity working relationships matter for achieving successful on-the-ground projects. Leaf Hillman provides an example:

When the Tribe and the Forest Service were at odds over the commercial harvesting of culturally significant tan oak mushrooms, an attempt was made to resolve many contentious issues and avoid litigation. Each entity appointed a negotiating team to come to a resolution. When it became clear that the Tribe would not accept a Forest Service proposal that required a personal use permit for Tribal Members, the negotiating teams refused to give up and searched ardently for a viable alternative. The willingness to be creative and “think outside the box” ultimately paid dividends when it was agreed that it would suffice to require that Tribal members show their valid Tribal Membership Cards to identify them as subsistent harvesters.

When present, strong working relationships can make all the difference in creative problem-solving for the collective good. The final of four recommendations from the joint review of the Tribal Forest Protection Act states:

The ITC and Tribes should explore ways to amend TFPA or other authorities to expedite consideration, approval, and implementation of TFPA projects by addressing environmental compliance categorical exclusions, alternative dispute resolution processes, and allowing for a greater range of management alternatives in specially designated land classification areas.

Enacting such creative solutions require personal commitment and rapport. But the same report notes that: “Where good working relationships exist, some Tribes and the Forest Service may use authorities other than the TFPA to accomplish desired resource objectives” (2013, 3). Achieving such a goal requires on the ground relationships, trust and the desire to use creative thinking to move beyond “business as usual” outcomes.

There are now many studies and guidebooks detailing problematic research and working relationships between Tribal communities and non-Tribal federal and state agencies. The National Congress of American Indians has recently released a report on ‘best practices’ for building research relationships with Native communities. Their observations are relevant beyond the concept of research relationships per se. Note that the importance of establishing personal trust is highlighted in their list (see also prior citations on this topic).

- ***Listen and pay attention***
- ***Respect cultural and local knowledge***
- ***Leave pre-conceived research assumptions behind: Have an open heart and mind***
- ***Have personal integrity: Establish trust, be authentic, act with humility***
- ***Have shared goals: Embracing community-driven research in a Tribal context***
- ***Tribes are diverse: Learn about the tribes you are working with***
- ***Plan for sustainability and provide community benefit***

NCAI Policy Research Center and MSU Center for Native Health Partnerships. (2012). 'Walk softly and listen carefully: Building research relationships with Tribal communities Washington, DC, and Bozeman, MT: Authors. P. 16

Unfortunately, in most cases weak or non-existent interpersonal relationships between individuals in Tribes and Federal or other non-Native agencies are the norm. Interpersonal rapport is itself further challenged by frequent turn over within these agencies. Specifically, Tribes criticize the state and federal policies that reward and incentivize frequent relocation from one unit to another unit in order to advance careers: these undermine the development of interpersonal relationships. By contrast, Tribal staff, being place based, tends to be static. Tribes value and encourage employees to stay. “Just when Tribal staff begins to know agency staff, their relationship frequently becomes disrupted by change in staff,” notes Hillman. He explains that this creates frustration within Tribal staff and acts as a disincentive to attempt to make those respected investments in relationships:

The results of the frequent turnover in agency staff are manifested in a lack of institutional knowledge. Tribes and Tribal people often prefer to communicate verbally – face-to-face interaction – and the agencies’ failure to adequately document those communications is additional source of mistrust and miscommunication. Even when agreements are formalized between Tribes and agencies, incoming line officers are often unaware of those settlements.

A key finding from the Intertribal Timber Council review of the effectiveness of the Tribal Forest Protection Act a key limitation for the use of the Act has been frequent turnover of leadership and staff which “hamper long-term, collaborative relationships at the local level between Tribes and the Forest Service.” The report also describes this issue in their discussion of key barriers to the possibility of collaboration: “Tribal staffs experience difficulty in establishing and sustaining working relationships with local FS personnel. Frequent FS staff turnover hinders the ability of Tribes to collaboratively identify, develop and implement TFPA projects” (2013, 4)

4) Lack of Cross Cultural Knowledge, Knowledge of Specific Local Tribal Priorities, and Tribal Trust Responsibilities.

Lands now administered by Federal and state management agencies were once fully under Tribal control. Colonialism and Native genocide in the United States occurred to create what are now considered “public lands.” In some cases Tribes ceded use of their lands to the U.S. government through treaties, in other cases lands were occupied by force. In California where the Karuk live treaties were signed but never ratified. Regardless of the particular political histories, places that are now designated as National Forests, BLM lands and more may be village sites, gathering areas, burial grounds and places of significance. Tribal people may retain or desire to retain ongoing relationships to particular places in the landscape as parts of cultural practice, individual identity or from a sense of responsibility to the places and the species who live there. Under the concept of Tribal trust, the Federal government has the responsibility to protect these lands from degradation. Unfortunately non-Native agency personnel frequently lack historical understanding of the places they seek to manage. For Native communities attempts to retain practices and culture are part of this ongoing and larger context of colonialism and racism. Without knowledge of this history it is no wonder that interpersonal relationships between Native and non-Native people are strained.

Just as the authors of the 2012 NCAI report on research in Tribal communities note “For any researcher wanting to work with Tribal nations, having an understanding and respect for Tribal sovereignty and the unique political status of tribes and their citizens is paramount” (13), these conditions are also necessary for agencies seeking to engage in research relating to Tribal TEK. The present lack of

understanding concerning the nature and use of Tribal knowledge as well as of specific local Tribal priorities and federal trust responsibilities to Tribes, all work against the ability of Tribes to maintain sovereignty over knowledge and other cultural practices. Note that the frequent movement of agency personnel discussed above also contributes to this problem.

The first of four central recommendations emerging from the joint Intertribal Timber Council, USFS and BIA review of the effectiveness of the Tribal Forest Protection Act suggests: “Improve agency understanding of TFPA, government-to-government relationships and trust responsibilities.” We endorse this suggestion, and note that achieving this recommendation should entail extending the implementation of relevant Forest Service programs to Tribes under the principles of self-governance and self-determination. Both knowledge of Federal policy on Tribal self-determination and commitment to enacting it are both key. Karuk Eco-Cultural Restoration Specialist Bill Tripp explains that while the Findings and Federal Declaration of Commitment of the Indian Self Determination and Education Assistance Act imply that self-determination is a government wide mandate, in practice, individual agencies may not be aware of the mechanisms for Tribes to assume responsibility for Federal programs. Tripp notes that “The Farm Bill in 2008 added a provision under Heritage Cooperative Authority that calls for an extension of U S Forest Service programs to Indian Tribes under the principle of self determination. This does not provide for direct compacting from U S Forest Service to Tribes, but it does imply that interdepartmental transfers at the Federal budgetary level could occur with the specific intent to compact capacities needed to enable parity through rapidly changing policy terrain. This would enable true and equal partnerships to emerge where U S Forest Service and Tribal territories overlap.”

The ability of agency personnel at the national, regional, forest and district levels to understand the principles of Tribal Trust and Self Determination is critical. And Tribes must dictate the circumstances that work best in their own situations. As Bill Tripp notes “if a Tribe doesn’t want to pursue a contract and wishes to use an agreement, or interdepartmental transfer mechanism, that should be the preference. Training should include what these terms and their use means to Tribes. In short, blanket training on Tribal Trust and Self Determination developed at the national scope may not be effective at the local scale where there are differences specific to Tribal self-determination and specific situation.

RECOMMENDATION: As per the Intertribal Timber Council report “Improve understanding of TFPA, government-to-government relationships and trust responsibilities by conducting joint training (i.e., general Tribal relations training currently in development by the FS and adaptation of modules produced by the ITC) and providing post-training technical support. Undertake a Tribal outreach effort to inform Tribes about the TFPA and encourage its use, including notice of training opportunities and distribution of technical assistance materials, such as templates for preparation of TFPA proposals along with descriptions of U S Forest Service administrative guidance and proposal review processes.”

The cultural barriers discussed here clearly form structural impediments to the realization of Native knowledge sovereignty and the ongoing application of traditional management to landscapes. While overcoming these cultural barriers is critical, it is even more essential to understand the institutionalized dimensions of Federal and State policy and practice that actively erode knowledge sovereignty today. These barriers are the subject of Chapter Three.

Chapter Three: Institutional Barriers Eroding Knowledge Sovereignty

“Native Americans have struggled for more than half a century to regain the political autonomy to apply their own methods of resource stewardship and to access subsistence resources on their historical lands. Unfortunately these efforts have been consistently met with significant structural resistance from government, academic and private interests, resistance that continues to this day.”

--- Kathleen Pickering Sherman et al 2010, p. 508

Institutional Barriers and the Erosion of Knowledge Sovereignty

- ***Inadequate Enforcement of Existing Policies***
- ***Inadequate Protection of Tribal Knowledge***
- ***Failure to Enforce Federal Tribal and Public Trust Responsibilities***
- ***Changing Political Terrain and Laws of other Sovereigns***
- ***Organizational Barriers to Conducting Traditional Management on Off-Reservation Lands***
- ***Barriers to Intergovernmental Project Collaboration***
- ***Limits in Tribal Capacity***
- ***Absence of Applicable Data/Non-Tribal Research Agenda***

While many of the obstacles Tribes face in maintaining sovereignty over traditional knowledge are cultural, many more are explicitly built into institutional policies and practices. Chapter Three examines how institutionalized policies and practices concerning access to information, intergovernmental project collaboration, inadequate enforcement of existing regulations and the overall absence of applicable research work together to erode the sovereignty of Tribal traditional knowledge. While the practice of traditional Tribal management and thus the regeneration of traditional knowledge is essential, evidence from the Karuk experience and beyond indicate that institutionalized policies and practices at national, state and regional levels form structural barriers that thwart implementation of Tribal management on forest lands as well. The discussion of each barrier to Tribes' ability to maintain control over Tribal knowledge and carry

out management is followed by one or more policy recommendations. An Appendix compiles all policy recommendations pertaining to both cultural and institutionalized barriers for knowledge sovereignty into one summary section.

1) Inadequate Enforcement of Existing Policies

“Consultation is of course only moderately effective, it depends on who you are talking to, just because you have the FS and Tribe talking together does not mean that such “consultation” is going to be effective.”

Bill Tripp, Karuk Department of Natural Resources

In many cases legal or policy mechanisms that are intended to protect Tribal rights or enable Tribal Management exist but are not enforced. Many rules, regulations and policies have been developed without “adequate” (if any) consultation with each distinct Tribal community or their governing body. In other cases the Forest Service may engage in Government to Government Consultation with Tribes, but then does something different once the “consultation” is finished. Relationships with Tribes must be based on the principals of self-governance and self-determination. Honest and open dialogue must intend to reach resolution instead of merely reaching the point to where passive consent could be implied. Thus, there is a need for the U S Forest Service to have repercussions when they break agreements with Tribes. Consultation needs to have teeth and consequences. There is a need for the national office of the Forest Service to create and enforce serious repercussions for Forest and District level violation of Tribal Consultation agreements that are monitored and administered by the National US Forest Service office in D.C.

RECOMMENDATION: Create and enforce serious repercussions for Forest and District level violation of Tribal Consultation agreements that are monitored and administered by the National USFS office in D.C.

2) Inadequate Protection of Tribal Knowledge

Chapter Two opened with a description of differences between the epistemological orientations of Western Science and traditional Tribal knowledge, as well as differences in the appropriate uses of knowledge in Native and non-Native communities. These distinctions are cultural, and they are also about power.

Whereas Western democracies are organized around the use of science for the public good and policies such as the Freedom of Information Act are set up to protect citizens from the potentially coercive actions of a powerful Federal government, these same assumptions about knowledge have worked to harm Native communities by serving as mechanisms for the extraction of knowledge by non-Native government agents and academics. Laws requiring disclosure of information shared by Tribal communities have thus been a significant mechanism of colonization. For example, universities and museums have benefited enormously from the theft and display of indigenous cultural artifacts and human remains, as well as from these institutions purported control over knowledge about indigenous peoples while at the same time denying access and dignity to indigenous peoples themselves (Lonetree 2012, Bowrey and Anderson 2009).

Present day academic Institutional Review Boards, federal Freedom of Information policies, and the emerging regulations concerning Intellectual Property are all organized around Western values, epistemologies and understanding of potential harms. Tribes confront unique and serious ethical risks beyond those faced by their non-Native counterparts in agencies or academic institutions (see e.g. Williams and Hardison 2013). Studies of how Traditional Ecological Knowledges have been collected and utilized suggest that governmental and academic institutions repeat the mistakes of the past by forcing TEK into western frameworks incompatible with holistic worldview from which the knowledge emerges (Simpson 2004). This misuse of indigenous knowledge is a form of assimilation that is unacceptable. As Harding et al 2012 note, 'Neither the standard human subjects requirements nor Intellectual Property Rights rules give adequate consideration to sovereignty or aboriginal rights, which is one of the reasons that inclusive declarations of indigenous rights have been published by the United Nations (2007) and are now recognized in principle by the world's major powers, including the United States" (6).

In 2014, an ad hoc group of Tribal leaders, Tribal scholars and others came together in response to a request from the Department of Interior Advisory Committee on Climate Change and Natural Resources Science to develop "*Guidelines for Considering Traditional Knowledges in Climate Change Initiatives.*" The Guidelines is an informational resource for tribes, agencies, and organizations across the United States with an interest in understanding traditional knowledges in the context of climate change. The purpose of the Guidelines is to provide foundational

information on the role of traditional knowledges in federal climate change initiatives, to describe the principles of engaging with tribes on issues related to traditional knowledges, and actions for federal agencies and tribes to consider that will establish processes and protocols to govern the sharing and protection of TKs. The Guidelines are intended to foster opportunities for indigenous peoples and non-indigenous partners to braid traditional knowledges and western science in culturally-appropriate and Tribally-led initiatives. Other powerful documents include Article 31 section 1 of the UNDRIP which states:

“Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.”

This past year the National Congress of American Indians issued Resolution #13-035 Request for Federal Government to Develop Guidance on Recognizing Tribal Sovereign Jurisdiction over Traditional Knowledge. The resolution begins by noting the recent interest in Traditional Ecological Knowledge by non-Native agencies and proceeds to outline the sacred obligations, sovereign rights of Tribes to control knowledge that are centrally at stake before asking ‘that the Federal government work with tribes to develop appropriate guidance on how to approach tribes for access to traditional knowledge . . .and with its funding agencies to ensure respect for and protection of these rights in all federally-funded projects . . .” The document is important and worth quoting at length:

WHEREAS, there is increasing acknowledgement that Indian tribes possess traditional knowledge that is equivalent to the value of scientific knowledge in solving environmental problems caused by global environmental change and climate change; and WHEREAS, traditional Tribal knowledge is a core part of our identity and ways of life, is highly spiritual and carries obligations for its appropriate use; . . . WHEREAS, in this context, Federal agencies, scientists and others are approaching tribes for access to their traditional knowledge and funding traditional knowledge compilation projects without guidance; and WHEREAS, the Federal government, in accord with the federal trust responsibility,

should recognize the sovereign rights of tribes to control access to and the use of their traditional knowledge and the right to free, prior and informed consent (FPIC) to give or deny access to it; . . . WHEREAS, the emphasis on the utilization of traditional knowledge should focus on support for its application by tribes to solve environmental and climate problems without the need for sharing it; and WHEREAS, in those cases where traditional knowledge may be shared by the tribes, measures need to be developed to ensure that it is used appropriately, that tribes are protected in policy and law against its misuse and that the tribes are able to determine and receive benefits from its use; . . .

Tribes have some protections against disclosure of knowledge under very specific conditions as per the Indian Self Determination Act,⁸ but if Tribes desire to collaborate with other agencies, once data are recorded in print they are subject to mandatory disclosure under the Freedom of Information Act. This fact alone is obviously a huge barrier for intergovernmental collaboration (see also mention of this issue under that sub heading in this chapter). Federal Protection against the mandatory disclosure of Tribal knowledge is therefore urgently needed. Existing protective exceptions to FOIA such as those that guard against disclosure of the location of endangered species, could provide an example or parallel avenue for the expansion of policy to respect Tribal sovereignty.

RECOMMENDATION: Ensure that grants, partnerships and other federal-Tribal initiatives do not require mandatory disclosure of Tribal traditional knowledge.

RECOMMENDATION: Agencies and other entities seeking to collaborate with Tribes should follow the 2014 Guidelines for Considering Traditional Knowledges in Climate Change Initiatives.

⁸ Whereas title I of the Indian Self-Determination and Education Assistance Act, Public Law 93- 638, 25 U.S.C. 450 et seq., as amended and sections 1 through 9 indicates “in the case of projects related to self determination, the Freedom of Information Act does not apply to records maintained solely by Indian tribes and Tribal organizations,” the sharing of knowledge by tribes with other entities in written form it is subject to FOIA.

3) Failure to Enforce Federal Tribal and Public Trust Responsibilities

"The creation of public land has had devastating implications for tribes, their members, and Tribal sovereignty. Federal land management has often led to the loss or direct expropriation of Tribal land and resources, jurisdiction, and control. As a result, the physical boundary between Indian country and federal land is complex"

King, 2007, 7

"The public trust doctrine makes clear that, as trustees, state and federal governments do not have unilateral power as a monarchy or dictator would. The original citizens and founders of this nation never gave our governments the power to destroy what is essential for our collective survival and prosperity. As beneficiaries of this trust, we share enduring public property rights in those resources, rights that hold constitutional force. . . . [Public trust] conceives of government officials as public trustees rather than as political actors. It imposes on them, as trustees, a strict fiduciary duty of loyalty to the beneficiaries -- and only the beneficiaries. "

Mary Christina Wood, 2014, 11-14

Land that is now managed by the Federal Government has been Indian Country long before the arrival of Europeans or the creation of a United States. Tribal trust interests are "part of a foundational bargain with the United States" Tsosie (2003). Legal scholar Mary Wood (2003) describes the Tribal trust as "a principle that arises from the native relinquishment of land in reliance on federal assurances that retained lands and resources would be protected for future generations. It bears rough analogy to nuisance and trespass law. Ownership of land carries corollary rights of government protection-the right to seek judicial redress against harm to property. The Indian trust responsibility is protection for property guaranteed on the sovereign level, from the federal government to tribes."

In her 2014 Keynote Address to the Tribal Environmental Leadership Summit Mary Wood describes how the trust framework characterizes the present ecological crisis "not as a political issue, but as a sovereign obligation that imposes an active, mutual duty of protection. A longstanding principle of trust law holds that trustees may not sit idle and let trust assets deteriorate on their watch." Yet although the Government has this trust responsibility to protect Tribal off-reservation resources, that trust has been violated: "Traditional lifeways that reach back literally thousands of years are poised in jeopardy along with the natural resources upon which they depend. Across Indian country, many tribes are at the brink of losing their fish and wildlife resources, having their land and water supplies contaminated, or having their sacred sites destroyed forever" (Wood, 2003, p).

Through their legal scholarship Wood and others stress the importance of reminding government decision makers of their legal obligations as fiduciaries (see also Tsosie, 2003, 2013).

The concept of Tribes as co-trustees or co-tenant of natural resources also exists within this public trust framework: “As the original sovereigns on this continent, tribes represent the original trustees. Their remarkable long-term stewardship of resources – sometimes sustained over the course of millennia – provides a supreme example of ecological fiduciary care” (ibid, 14). Wood goes on to note how the Ninth Circuit Court characterizes the tribes and the states as co-trustees. “In the Pacific Northwest treaty fishing cases, courts have described tribes and states as analogous to “co-tenants” of a common asset (their shared fishery).⁹ Using the same logic, we could think of tribes as co-trustees with respect to all shared resources, including migratory fish and wildlife, atmosphere, and waters that flow off the reservation. . . .” (ibid, 15).

Just as they have with the case of the shared fishery of the Columbia River Basin, Tribes can assert their standing as co-tenants of water, forests and more. But because they are not currently recognized, these rights must be asserted through legal action. Parallel developments in the use of public trust doctrine in relation to climate change, and the responsibility of the government to protect the common atmosphere have relevance for the enforcement of Tribal trust. Wood calls for tribes “to exert leadership in the policy realm, and potentially assert claims under the law, as co-trustees of the atmospheric trust.” (ibid, 1-2). The NCAI submitted a brief in support of youth plaintiffs in the current federal Atmospheric Trust Litigation.

RECOMMENDATION: Tribes Should Exert Tribal Joint Tenancy Rights.

Within the public and Tribal trust frameworks, tribes can assert their standing as co-tenants and co-trustees of the forests, waterways or atmosphere, just as they do with a shared fishery and **assert claims as co-trustees of the atmospheric trust.**

Federal Trust duties to the Karuk and other Tribes also include those established in the American Indian Religious Freedom Act (AIRFA) of 1978 protection of Karuk

⁹ Puget Sound Gillnetters Ass’n v. U.S Dist. Court for W. Dist., 573 F.2d 1123, 1126 (9th Cir. 1978) (explaining that the treaty established “something analogous to a co-tenancy, with the tribes as one cotenant and all citizens of the Territory (and later of the state) as the other.”).

sacred sites and religious rites. Religious freedom is intimately related to the preservation of self-determination and governance. In addition to AIRFA, the National Historic Preservation Act also calls for the protection and preservation of “living cultures”. This Act in current applicability, merely works to preserve information relevant to Tribal cultures as though they no longer exist; American Indian people are still here and this Act should afford us the right to be who we are intended to be in this place.

The recent MOU between the Advisory Council on Historic Preservation and the Departments of Agriculture, Defense, Energy and Interior described in Chapter One is designed to strengthen the protection of Indian sacred sites. The MOU commits the participating agencies to “work together on developing guidance on the management and treatment of sacred sites, on identifying and recommending ways to overcome impediments to the protection of such sites while preserving the sites’ confidentiality, on creating a training program for federal staff and on developing outreach plans to both the public and to non-Federal partners.” Note however that this language assumes that Tribes are static entities of the past rather than active joint tenants or “co-sovereigns” in the management of these lands in the present. Thus more meaningful implementation of this new Sacred Sites policy could take place through expanding the application of joint-tenancy and co-sovereignty discussed in previous section. Karuk Eco-Cultural Restoration Specialist Bill Tripp notes that “sacred sites principles in the MOU updates should be used to build a bridge from agreement in principle to true self governance and self determination. This rebuilds Tribal purpose for being upon sacred lands and practices, and extending these throughout the territorial landscape.” Tripp sees a key approach to moving forward in the language regarding taking sacred sites (i.e. cultural management areas) and funding section 110 activities at Tribal THPO departments to the assess the sacred sites as what are known as Traditional Cultural Properties’. From there Tribes could identify the family groupings associated with these sacred sites and ceremonies to tie the management of the land to principles maintained in ceremonial processes.

In all this Tribes must be the ones to determine their own sacred areas. Leaf Hillman notes: “Among the primary goals of the US Forest Service Sacred Sites Policy and the recently adopted Interdepartmental MOU is the development of effective plans and strategies for the long-term protection and management of sacred sites located on Federal lands, thereby reducing conflicts with Tribes and

Native American religious practitioners. Therefore, critical to achieving this goal is an implicit understanding and acknowledgement that sacred sites, wherever located, are sacred sites. The Native American religious practitioners who access and utilize these sacred sites know what is important in terms of protecting that on-going use. Tribes and the individual practitioners are the experts, and are the only ones who can determine what constitutes effective protection measures and strategies.”

RECOMMENDATION: US Forest Service should initiate dialog with Tribes, Tribal Historic Preservation Officers (THPOs), and religious practitioners to evaluate and determine potential for local application of the recently adopted interdepartmental MOU on Sacred Sites. Collaborate with Tribes to explore pro-active measures to protect and manage sacred sites. Prioritize funding for Section 110 activities that engage Tribes and THPOs to assess and evaluate sacred sites as Traditional Cultural Properties (TCPs). Collaborate with Tribes in the joint development of agreements and management plans to ensure the long-term protection, access, and culturally appropriate management of sacred sites.

4) Changing Political Terrain and Laws of other Sovereigns Can Diminish Tribal Sovereignty

As the quote that opens this chapter describes, Native struggles to retain and reclaim access to subsistence resources, cultural use species and spiritual practices more often than not have put them in conflict with Federal and State agencies whose policies and legal practices form barriers to Native revitalization (Wilkinson 2005). Now in the face of climate change, new institutional barriers to Tribes have emerged (see Whyte 2013).

The notion that environmental degradation may have implications for Tribal sovereignty has become an especially important theme within emerging scholarship on climate change (Abate and Kronk 2013, Tsosie 2013, Whyte 2013). As culturally important species move or disappear with landscape change, Tribal claims and jurisdictions over access to those species may be affected. Furthermore, climate change is rapidly reshaping the legal landscape: new problems require new judicial rulings. And because there are still very few comprehensive Federal laws applying to either the adaptation or mitigation of climate change, emerging regional, state,

and local efforts have emerged ad hoc. In the absence of an overarching legal framework Tribes face potential loss of acknowledgement of their jurisdiction if they are excluded from or cannot keep up with the multiple and rapidly changing dynamics between federal and local actors (Cordalis and Suagee 2008).

RECOMMENDATION: Develop policy to protect Tribes from the actions of the laws of other sovereigns. In the face of complex multi-institutional agency responses to climate change laws of other sovereigns are impacting Tribal sovereignty. This is especially pertinent for Tribes seeking to manage off-reservation lands, as well as for tribes without sufficient capacity to participate in the rapidly changing policy terrain.

5) Organizational Barriers to Conducting Traditional Management on Off-Reservation Lands

Next we describe a series of what can be called “organizational” barriers to Tribal abilities to enact management in the landscape. These include the coupling of the US Forest Service funding structure to commodity production, the move towards conceptions of sovereignty based on reservations rather than Tribal territories and limits in the structure of Tribal compacting authority.

Coupling of Forest Service Funding Structure to Commodity Production

Forest Service management is set up around the assumption of commodity production (see also discussion in Chapter Two). As a result the vast majority of Tribal uses including as a source of water and food, and the location of spiritual practices are unsupported and unseen, if not overtly prevented in the course of Forest Service planning and land use practices. Tribal subsistence economic activities are also invisible. The commodity driven organizational structure of the Forest Service is linked specifically to the under-realized potential of the Tribal Forests Protection Act. Funding for projects such as those under TFPA which ostensibly reflect different values, and which would save money in long run are dependent upon Congressional appropriations. For example, multiple reports indicate that the cost savings of Tribal management activities such as traditional

burns remain under-funded. Citing from the 2013 report: “The ability to fund TFPA projects has largely been dependent on Congressional appropriations because opportunities to defray treatment costs (e.g., goods for services) are becoming increasingly scarce due to the decline of viable markets for forest products” (2013,1).

Karuk Eco-Cultural Restoration Specialist Bill Tripp notes “It is not only the funding constraints of the commodity focus that limits the TFPA from potential success, but also the fact that the US Forest Service uses commodity driven management concepts in formulating government to government relationships. As a result, engagement mechanisms are not conducive of a true and equal decision making process under law. The federal agency may be delegated the “decision authority” due to the “Trustee” factor, but as a “sovereign beneficiary” self-determination should determine the who how what where when and why of the situation. Without taking this approach, Tribes will be perpetually assimilated through factors of neo-colonialism, intimidation, and coercion, rather than achieving consensus, or informed consent.”

RECOMMENDATION: Honor and expand upon the purpose of the 2008 Farm Bill “to increase the availability of Forest Service programs and resources to Indian tribes in support of the policy of the United States to promote Tribal sovereignty and self-determination;”

Use this authority in combination with other existing authorities/processes to build Tribal capacities and negotiate modified appropriation language with the intent of compacting portions of USDA programs through USDI to individual tribes in support of ensuring self-governance and self-determination while achieving parity in the decision making process.

Use of “Reservation Sovereignty” rather than “Territorial Sovereignty”

Definitions of sovereignty change over time and in accordance with the actions of policymakers and judicial rulings. One such distinction is the notion of sovereignty as linked to reservations, versus sovereignty that is territorial. According to the Indian Self Determination Act, the formula used for funds allocation is based on a Tribe’s reservation land base, e.g. the notion of reservation sovereignty. This conception means that for the Karuk and many other Tribes who desire to expand

knowledge sovereignty by managing off-reservation potential funding is so minute that it is of no benefit. If however, the formula were calculated for a Tribe's territory rather than a reservation it would enable the management of a much larger area.

RECOMMENDATION: Recognize the Scale of Native Sovereignty. Employ definition of Territorial rather than Reservation Sovereignty Expanded recognition of the scale of sovereignty would enable Tribes to secure the necessary resources to pursue traditional management on millions more acres of their traditional lands.

In another example, the National Cohesive Strategy for Wildland Fire Management is broken down to the county level to establish a process for determining priority socio-political delineations to address fire. However, fire as a process responds to geography and climate, not socio-political boundaries. During the drafting of this plan it was recommended that Tribal territories be used since they more accurately encompass changes in eco-region, or eco-type, yet can be narrowed down to a socio-political scale small enough to weigh factors against each other in the interest of aligning national priorities to a standardized set of sub geographical delineations. Although there was some level of agreement that Tribal territory delineations would make more sense, the fact that Tribal territories had not been defined became an irresolvable factor given the timeframe for completion of the strategy.

BIA trust land formulas dictate Tribal fire budgets. Although Federal and State jurisdictional delineations have been well funded and have gained recognition of autonomy, Tribal jurisdictions as defined under the principles of self-determination do not receive such privileges. If Tribes use the compacting authority, they will be greatly underfunded and will not be able to meet the need due to the fragmentation of landscape jurisdictions and associated responsibility delineations. These would need to become intergovernmental formulas as to how much it would cost have established intergovernmental program efficiencies.

RECOMMENDATION: Develop an intergovernmental fire funding formula that considers the mission area focus and geographic presence of all federal, state, and Tribal governments at a Tribal territorial scale.

Limits and Structure of Tribal Compacting Authority

"We still do not yet have a Federalist structure, that all three of those sovereigns fits into, a structure that truly recognizes sovereignty. Such a Federalist system wouldn't be compartmentalized. It would apply to all federal agencies and would break down the institutional barriers that are built up."

-- Leaf Hillman, Director Karuk Tribe Department of Natural Resources

Passage of the 1975 Indian Self Determination and Assistance Act and expanded actions in the 1994 Tribal Self-Governance Act provided a powerful mechanism for transferring authority over the management of federal land to Indian tribes. The 1994 Act acknowledges in particular the effect that land management by federal agencies has had on Tribal sovereignty (see e.g. King 2007). Both Acts are designed to provide means for enhanced Tribal participation in federal land management. One such mechanism is Tribal compacting authority. This powerful tool is presently limited in a number of ways that are especially relevant for the ability of Tribes to manage off reservation lands. For example, the Indian Self Determination and Education Assistance Act only provides the authority for Tribes to compact with the BIA and Indian Health Service programs. It would be beneficial to expand the ability of Tribes to compact with all entities under the DOI, EPA and USDA. This situation would enable Tribes to acquire an intergovernmental compact and reinvest portions of these programs to apply funding sources with a similar or parallel mission focus upon a common landscape to achieve multiple objectives. As Bill Tripp of the Karuk Department of Natural Resources notes "We could be funding programmatic activities, and supporting our local partnerships and move forward over time with activities on a non-competitive basis that if compacted would enable us to permanently assume those responsibilities on the territorial land base."

As noted in the opening quote, the lack of a more comprehensive compacting authority is a function of limits within the Federal structure. Karuk DNR director Leaf Hillman articulates how "We need to have not only existing authorities, but there needs to be an emphasis on this within the Federal structure, not just within the Forest Service or a within any particular agency. " The ability to enact expanded contracting options is built into the NCWFMS: "Federal stewardship end-result contracts, compacts and/or agreements can be entered into by Tribes, communities, states, and for-profit or non-profit organizations to conduct fuels and restoration activities on nearby BLM or Forest Service lands" (2012 p. 33). While the creation of

new Compacting Authority requires an act of Congress, intermediate steps could include the authorization of transfer of funds from appropriations budget from the USFS to the DOI and directly to a specific Tribe for the purpose of gaining efficiencies in the wildland fire management program as outlined in the 2009 Omnibus Appropriations Act (see Chapter One). Though this would not enable permanent compacting as recurring funds, and would require indirect costs to follow the transfer, it could serve a “pilot” purpose until such time funds could be reinvested in DOI through appropriations language for integration with the beneficial Tribal compact. Note this is congruent with recommendation #4 of joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act to “Explore options and opportunities to advance use of Tribal contractors who can promote economic development, use of goods and services and increase Tribal employment.”

In addition to the limited ability to form compacts with Federal agencies, Tribes have little or no compacting authority with States. While SEC. 512e of the Indian Self Determination Act on State Facilitation specifically notes that “States are hereby authorized and encouraged to enact legislation, and to enter into agreements with Indian tribes to facilitate and supplement the initiatives, programs, and policies authorized by this title and other Federal laws benefitting Indians and Indian tribes” . . . within California the only compacting authority between States and Indian Tribes has been to enable the creation of casinos. Wider compacting authority with states has yet to be implemented. In California, Executive Order B-10-11 recognizes Tribes’ sovereign authority over their members and territory, creates a Tribal advisor who meets with the Tribes to discuss state policies that affect Tribal communities and reviews state legislation and regulations affecting Tribes. This represents a promising development for the preservation of Tribal knowledge sovereignty.

RECOMMENDATION: Expand Tribal Compacting Authority to include all entities under the DOI, EPA and USDA

RECOMMENDATION: While the creation of new Compacting Authority requires an act of Congress, intermediate steps could include **the authorization of transfer of funds from appropriations budget from the USFS to the DOI and directly to a specific Tribe for the purpose of gaining efficiencies in the wildland fire management program** (see 2009 Omnibus Appropriations Act).

RECOMMENDATION: Expand Implementation of Tribal-State Compacting Authority

Limited Application of Forest Service Contracting Options

One mechanism for Tribes to receive necessary funds to conduct traditional management is through contracts from agencies. Existing contracting authority lumps Tribes into the category with private companies or state and local governments. Participating in such arrangements can weaken Tribal sovereignty. The ability to enact expanded contracting options is built into the NCWFS: “Federal stewardship end-result contracts, compacts and/or agreements can be entered into by Tribes, communities, states, and for-profit or non-profit organizations to conduct fuels and restoration activities on nearby BLM or Forest Service lands” 2012, p. 33. This recommendation is directly in line with one of the two objectives of Phase II of the Cohesive Strategy for Wildland Fire Management that requires use of the most effective combination of grants, agreements, contracts and compacts to conduct a wide range of activities from management to planning, to re-assessment.

RECOMMENDATION: Develop new, unique, or combined set of Tribally specific funding transfer mechanisms.

RECOMMENDATION: Conduct research to explore “the most effective combination of existing authorities” to undertake management actions as per Phase II of the Cohesive Strategy for Wildland Fire Management noted above.

6) Barriers to Intergovernmental and Interagency Project Collaboration

One key recommendation of the 2013 Phase III National Cohesive Wildland Fire Management Strategy is to “Expand collaborative land management, community and

fire response opportunities across all jurisdictions, and invest in programmatic actions and activities that can be facilitated by Tribes and partners under the Indian Self-Determination and Education Act (as amended), the Tribal Forest Protection Act, and other existing authorities in coordination with the UN Declaration on the Rights of Indigenous Peoples” (p. 5).

Lack of Agency Knowledge Concerning Federal Tribal Trust Responsibilities

Another factor that creates structural limitation to the ability of Tribes to maintain sovereignty over their traditional knowledge and to carry out traditional practices includes limited Forest Service understanding of government-to-government relationships and agency trust responsibilities to Tribes and limited accountability for violations of these responsibilities. This barrier was highlighted in the recent Fulfilling the Promise report reviewing limitations to the implementation of the Tribal Forest Protection Act. The document notes that Forest Service personnel themselves raise this issue: “**Understanding of government-to-government relationships and agency trust responsibilities to Tribes is variable.** FS staffs are generally aware of Tribal-federal policies, such as government-to-government relationships, self-determination, and consultation requirements and of concepts such as trust responsibilities. However, understanding of how those policies and concepts differ from general agency responsibilities for interacting with the general public or stakeholder groups is often lacking. At the local level, FS staff may not be familiar with the cultural, spiritual, and economic relationships Tribes have with the land. Uncertainty regarding protocols and processes to implement those policies within the context of unique Tribal relationships and rights (e.g., language, appropriate interactions within Tribal organizational structure, sacred sites, customs, ceremonies and practices, traditional foods and medicines, reserved, retained, and treaty rights, court decrees, agreements, etc.) may also be obstacles.”

As per the recommendations of joint Intertribal Timber Council and US Forest Service review of the Tribal Forest Protection Act: **Expand Forest Service understanding of the Tribal Forest Protection Act authority**, as well as the process of proposal development, review, and implementation. TFPA may be an effective authority if the Agency concerned truly honors self-governance and self-determination. Agency interpretation in the interest of complete and perpetual control goes against these principles and will ultimately erode government to

government relationships. Create a joint Tribal ITC-USFS working group to assist the agency in developing educational materials to enhance the understanding of the TFPA, and to help guide both the USFS and their Tribal partners through the process of proposal development, project review, and implementation. The USFS should solicit participation in the joint working group from interested Tribes within each region. The US Forest Service should foster and encourage greater collaboration with Tribes in the development and implementation of TFPA projects to ensure outcomes that fulfill the greatest mutual benefits to both parties. Note that there are many other barriers to collaboration that could be mentioned. More accountability for violations is fundamentally necessary. The absence of personal relationships across agencies is frequently raised as a barrier, but this is discussed in Chapter Two as an example of a cultural rather than institutional barrier, although they are of course related.

RECOMMENDATION: More Trainings on Cross-Cultural Communication, the Colonial legacy of the USFS, Tribal Management Priorities and Public and Tribal Trust Responsibilities.

RECOMMENDATION: As per the recommendations of joint Intertribal Timber Council and US Forest Service review of the Tribal Forest Protection Act: **Expand Forest Service understanding of government-to-government relationships and agency trust responsibilities to Tribes.** The Tribal relations program should be constructed as a means of building Tribal specific relationships with the sole intent of extending Forest Service programs and resources to tribes in a lasting and meaningful way. All too often this program merely serves as a means to check a consultation box or otherwise protect the agency interest. This approach will never be effective.

RECOMMENDATION: Establish a joint Tribal-ITC-NCAI-USFS Task Force to develop a national strategy aimed at expanding and enhancing US Forest Service government-to-government relationships with and trust responsibilities to Tribes. This effort should be agency-wide and include district, forest, regional, and headquarter staff.

7) Limits in Tribal Capacity

The above structural barriers to implementing Tribal traditional management work to create a compounding problem: limits on Tribal capacity in the form of staff, and

legal and economic resources. This becomes a circular problem whereby if Tribes cannot access funding to manage off-reservation lands, the lack of funds limits overall Tribal capacity which in turn further constrains the ability of Tribes to exercise sovereignty. On the other hand, if Tribes could receive more funding for the management of off-reservation lands they would have greater capacity for participation in larger policy conversations, including those within the shifting terrain of climate change policy. Yet problems such as current funding formulas reflecting reservation rather than territorial sovereignty as mentioned above, in turn further constrain efforts to maintain knowledge sovereignty.

RECOMMENDATION: Mechanisms to enhance Tribal capacity in general are essential for the retention of knowledge sovereignty as well as other forms of sovereignty. The ability of tribes to proactively engage in the active policy context of climate change is limited by lack of staff as well as economic and legal resources. Greater Tribal staffing and recurring funding are needed to institutionalize the capacity of Tribes to assume leadership roles.

8) Absence of Applicable Data and Dominance of Non-Tribal Research Agenda

To date the research questions and priorities of Universities and Federal and state agencies related to land management have reflected the knowledge and interests of non-Native agencies and scientists. This dominance of research agendas, research questions and research practices by non-Tribal people has led to what is at best incomplete understanding of forest and human-ecological systems, and at worst a gross mischaracterization regarding the nature of human-ecological systems. The dominance of non-Tribal research agendas is also mentioned also in Chapter Two as many of the problems emerge from cultural assumptions that humans and nature are separate. The lack of applicable data that results from the overall Western or non-Native research agenda is both a cultural and an institutional barrier because existing understandings of the world drive both policy and best practices. Priorities for additional research mentioned throughout this document include: The non-Native cultural assumptions about the world described in Chapter Two including

conceptions of the nature and use of knowledge and the relationship between people and the natural world translate into research priorities, questions, data and peer-reviewed articles that re-shape knowledge around non-Native worldviews. The near total absence of data or peer reviewed papers from the perspective of Native peoples such as subsistence uses of the forest, social and cultural benefits of traditional activities, social impacts of federal policies such as fire exclusion and more works to further justify and legitimize non-Native perspectives. Without data or knowledge of numerous social and economic aspects of forest use the social impacts sections drawn up in NEPA documents are grossly inadequate. Equally problematic, the human and ecological benefits of Tribal management remain invisible and unused.

RECOMMENDATION: We recommend that agencies and other entities including the NPLCC, BIA, USDA, and National Science Foundation fund research in the following areas. Research projects and questions should be initiated, designed and carried out by Tribes wherever possible. Research questions emerging from needs and perspectives of local contexts is particularly important. Some research priorities:

- Expand study of the socio-economic benefits of Tribal management for Native and non-Native communities. Expand research on relationships between various ecological conditions and human social, health, psychological and political outcomes, especially as relevant for Tribes.
- Expanded study of the complex impacts of multi-institutional agency responses to climate change and “the laws of other sovereigns” on Tribal sovereignty, especially for Tribes seeking to manage off-reservation lands. In the face of rapidly changing policy terrain tribes without sufficient capacity face erosion of sovereignty.
- Identify the most effective combination of existing grants, agreements, contracts, compacts and authorities for contracting to conduct a wide range of management activities from management to planning, to re-assessment as per recommendations in Phase II of the Wildland Cohesive Management Strategy.
- Research on relationships between Tribal forest management activities such as prescribed fire/cultural burning, and balance of carbon emissions, below ground carbon storage, other forms of carbon sequestration, stream shading, food, fisheries, fiber, water quality, and other benefits.

Appendix: Compilation of Strategies to Promote Traditional Knowledge Sovereignty

This Appendix compiles the recommendations made from Chapters Two and Three into one place. For further discussion of the issues behind each recommendation refer back to their discussion in these chapters. Recommendations are organized into strategies that apply at the National level followed by strategies at Regional and Local levels. In each case recommendations are organized into three categories of action: 1) mechanisms to increase Tribal management of off-reservation lands, 2) mechanisms to enhance intergovernmental cooperation and 3) priorities for additional research. Actions requiring legal or legislative action as well as those to be taken by agencies are further delineated.

National Strategies to Promote Tribal Traditional Knowledge Sovereignty

Mechanisms to Increase Management of Off-Reservation Lands

Tribal traditional ecological knowledge is fundamentally a cultural practice. Tribal TEK is not a static rulebook, but a set of practices that to survive must be played out on a living landscape. Therefore the most immediate and efficient mechanism to achieving knowledge sovereignty is to remove barriers to Tribal sovereignty over traditional management, including management of off-reservation and/or concurrent jurisdiction lands.

One present limitation to exercising sovereignty is limits on Tribal capacity in the form of staff, and legal and economic resources. Definitions of sovereignty are in turn behind this situation. The ability of tribes to proactively engage in the active policy context of climate change is limited by lack of staff as well as economic and legal resources. Mechanisms to enhance Tribal capacity are therefore essential for the retention of knowledge sovereignty as well as other forms of sovereignty.

Actions Requiring Legal or Legislative Remedies

- **Expand Federal Compacting Authority for Tribes** to include all entities under the DOI, EPA and USDA. While the creation of new Compacting Authority requires an act of Congress, intermediate steps could include the authorization of transfer of funds from appropriations budget from the USFS to the DOI and directly to a specific Tribe for the purpose of gaining efficiencies in the wildland fire management program (2009 Omnibus Appropriations Act). Though this would not enable permanent compacting of these as recurring funds, and would require indirect costs to follow the transfer, it could serve a “pilot” purpose until such time funds could be reinvested in DOI through appropriations language for integration with the beneficial Tribal compact. Note this recommendation is congruent with recommendation #4 of joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act to “Explore options and opportunities to advance use of Tribal contractors who can promote economic development, use of goods and services and increase Tribal employment.”
- **Tribes Should Exert Tribal Joint Tenancy Rights.** Within the public and Tribal trust frameworks, tribes can assert their standing as co-tenants and co-trustees of the forests, waterways or atmosphere, just as they do with a shared fishery and **assert claims as co-trustees of the atmospheric trust.**
- **Recognize the Scale of Native Sovereignty. Employ definition of Territorial rather than Reservation Sovereignty** Expanded recognition of the scale of sovereignty would enable Tribes to secure the necessary resources to pursue traditional management on millions more acres of their traditional lands.

Actions for Forest Service and other Federal Agencies

Note that these recommendations emerge from lessons learned by the Karuk Tribe where the US Forest Service is the major player. Tribes with off reservation lands managed by the BLM, NPS, FWS or others are encouraged to expand upon these ideas as needed.

- **Modify intergovernmental fire allocation funding formulas** to reflect Tribal territory size rather than current use of Tribal reservation size. This concept builds on definitions of territorial based sovereignty so that it is for the territorial sovereignty rather than reservation based sovereignty.
- **Create and enforce serious repercussions** for District level violation of Tribal Consultation agreements by the National USFS office in D.C.

- **Develop new, unique, or combined set of Tribally specific funding transfer mechanisms.** Present Environmental Stewardship Contracting blends Tribes with private companies or state and local government, posing negative legal implications for Tribal sovereignty. Note this recommendation is congruent with recommendations of the joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act to “Explore options and opportunities to advance use of Tribal contractors who can promote economic development, use of goods and services and increase Tribal employment” (2013, 6).
- **Authorize transfer of appropriation budget funds USFS to the DOI and then directly to Tribes** for the purpose of wildland fire management as per 2009 Omnibus Act. Note this recommendation is congruent with recommendation of the joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act to “Explore options and opportunities to advance use of Tribal contractors who can promote economic development, use of goods and services and increase Tribal employment” (2013, 6).
- **Recognize humans as a critical component of ecosystems.** Humans are vital for maintaining balance in fire process and function. Forest Service prioritization rubric should incorporate the guidance for categorizing natural versus anthropogenic emission sources from the 2005 Western Regional Air Partnership Fire Emissions Joint Forum. This document outlines how managed wildfire needs to occur in its interval. If a landscape is in condition class 1, fires should not be suppressed. If fires are in condition class 2 then perhaps prescribed fires or cultural burns should be used to maintain the condition class. Or cultural burns / managed wildfires should be used to bring it to a condition class 1. If lands are in condition class 3, then cultural burns should be readied and employed at the correct intervals to restore and maintain the resiliency found in a condition class 1 area. All of these scenarios should fit within a natural emission category as per the 2005 guidance. However development of Tribal implementation plans, or modification of state implementation plans, or agreements between tribes, partners, and the EPA may be needed.
- As per the recommendations of joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act: **Clear USFS agency direction, guidance and support** for implementation of the Tribal Forest Protection Act from the National level to the regional and local offices.
- As per the recommendations of joint Intertribal Timber Council and USFS review of the Tribal Forest Protection Act: **USFS should assist in effective implementation of TFPA** by identifying needed legislation and providing information and comments to the Administration. These should be formulated in consultation with tribes that applied but were denied or have

had a difficult time implementing due to forest service barriers.

Mechanisms To Enhance Intergovernmental Project Collaboration

“ . . . WHEREAS, traditional Tribal knowledge is a core part of our identity and ways of life, is highly spiritual and carries obligations for its appropriate use . . . the Federal government, in accord with the federal trust responsibility, should recognize the sovereign rights of tribes to control access to and the use of their traditional knowledge and the right to free, prior and informed consent to give or deny access to it . . . in those cases where traditional knowledge may be shared by the tribes, measures need to be developed to ensure that it is used appropriately. . .

-- NCAI #REN-13-035 Request for Federal Government to Develop Guidance on Recognizing Tribal Sovereign Jurisdiction over Traditional Knowledge, 2013

- **Create immediate Federal protections eliminating the mandatory disclosure of Tribal ecological knowledge.**
- Ensure that grants, partnerships and other federal-Tribal initiatives do not require mandatory disclosure of Tribal traditional knowledge.
- Agencies and other entities seeking to collaborate with Tribes should follow the 2014 Guidelines for Considering Traditional Knowledge in Climate Change Initiatives.
- **Implement Sacred Sites Policy:** determine potential for local application of recent interdepartmental MOU. The key to this is the language regarding taking sacred sites (cultural management areas) and funding section 110 activities at Tribal THPO departments to assess the sacred sites as TCP's then look to the identifiable family groupings associated with these sacred sites and ceremonies to tie the management of the land to principles maintained in our ceremonial processes. See the Karuk Draft Eco-Cultural Resources Management Plan. Among the primary goals of the USFS Sacred Sites Policy and the recently adopted Interdepartmental MOU is the development of effective plans and strategies for the long-term protection and management of sacred sites located on federal lands, thereby reducing conflicts with Tribes and Native American religious practitioners. Therefore, critical to achieving this goal is an implicit understanding and acknowledgement that sacred sites, wherever located, are sacred sites period. The Native American religious practitioners who access and utilize these sacred sites know what is important in terms of protecting that on-going use. Tribes and the individual practitioners are the experts, and are the only ones who can determine what constitutes effective protection measures and strategies. USFS should initiate dialog with Tribes, THPOs, and religious practitioners to evaluate and determine potential for local application of the recently adopted interdepartmental MOU. Collaborate with Tribes to explore pro-active measures to protect and manage sacred sites. Prioritize funding for Section 110 activities that engage Tribes and THPOs to assess and evaluate sacred

sites as Traditional Cultural Properties (TCPs). Collaborate with Tribes in the joint development of agreements and management plans to ensure the long-term protection, access, and culturally appropriate management of sacred sites.

- As per the recommendations of joint Intertribal Timber Council and US Forest Service review of the Tribal Forest Protection Act: **Expand Forest Service understanding of the Tribal Forest Protection Act authority**, as well as the process of proposal development, review, and implementation. TFPA may be an effective authority if the Agency concerned truly honors self-governance and self-determination. Agency interpretation in the interest of complete and perpetual control goes against these principles and will ultimately erode government to government relationships. Create a joint Tribal ITC-USFS working group to assist the agency in developing educational materials to enhance the understanding of the TFPA, and to help guide both the US Forest Service and their Tribal partners through the process of proposal development, project review, and implementation. The USFS should solicit participation in the joint working group from interested Tribes within each region. The U S Forest Service should foster and encourage greater collaboration with Tribes in the development and implementation of TFPA projects to ensure outcomes that fulfill the greatest mutual benefits to both parties.
- As per the recommendations of joint Intertribal Timber Council and US Forest Service review of the Tribal Forest Protection Act: **Expand Forest Service understanding of government-to-government relationships and agency trust responsibilities to Tribes**. The Tribal relations program should be constructed as a means of building Tribal specific relationships with the sole intent of extending Forest Service programs and resources to tribes in a lasting and meaningful way. All too often this program merely serves as a means to check a consultation box or otherwise protect the agency interest. This approach will never be effective. Establish a joint Tribal-ITC-NAI-USFS Task Force to develop a national strategy aimed at expanding and enhancing USFS government-to-government relationships with and trust responsibilities to Tribes. This effort should be agency-wide and include district, forest, regional, and headquarter staff.
- As per the recommendations of joint Intertribal Timber Council and US Forest Service review of the Tribal Forest Protection Act: **“The ITC and Tribes should explore ways to amend TFPA or other authorities to expedite consideration, approval, and implementation of TFPA projects by addressing environmental compliance categorical exclusions, alternative dispute resolution processes, and allowing for a greater range of management alternatives in specially designated land classification areas.”** Amendment of the TFPA authority may benefit greatly from taking an integrated approach to connecting the dots between interrelated authorities, while outlining a process of piloting programmatic efficiencies/effectiveness,

and enabling long term investments in success

Research Priorities

Tribal knowledge sovereignty and management are limited by a lack of existing knowledge in matters of importance to Tribes. This is true in part because research questions and priorities by non-Native agencies and Western scientists have perpetuated non-Native understandings of the world. We recommend that agencies including the BIA, NPLCC, USDA, and National Science Foundation fund research in the following areas. Research projects and questions should be initiated, designed and carried out by Tribes wherever possible.

- NPLCC is to fund peer reviewed socio-economic research on some of these subjects. That could end up bringing funding back to us to start doing some of that. Local people need to do the work, Tribal people in particular. That is an institutional barrier (the lack of published material showing real socio-economic relationships).
- Expanded study of the complex impacts of multi-instructional agency responses to climate change and “the laws of other sovereigns” on Tribal sovereignty, especially for Tribes seeking to manage off-reservation lands. In the face of rapidly changing policy terrain tribes without sufficient capacity face erosion of sovereignty.
- Identity the most effective combination of existing authorities for contracting and compacting to conduct a wide range of management activities from management to planning, to re-assessment as per recommendations in Phase II of the Wildland Cohesive Management Strategy.
- Research on relationships between Tribal forest management activities such as prescribed fire on carbon emissions.

Regional and Local Strategies To Enhance Tribal Knowledge Sovereignty

“Emphasis on the utilization of traditional knowledge should focus on support for its application by tribes to solve environmental and climate problems without the need for sharing it; and in those cases where traditional knowledge may be shared by the tribes, measures need to be developed to ensure that it is used appropriately, that tribes are protected in policy and law against its misuse and that the tribes are able to determine and receive benefits from its use. . .”

National Congress of American Indians Resolution #REN-13-035 Request for Federal Government to Develop Guidance on Recognizing Tribal Sovereign Jurisdiction over Traditional Knowledge

In parallel to the National recommendations, we recommend three categories of action at the Statewide, regional and local levels to enhance Tribal knowledge sovereignty, 1) mechanisms to increase Tribal management of off-reservation lands, 2) mechanisms to enhance intergovernmental cooperation and 3) priorities for additional research.

Mechanisms to Increase Tribal Management of Off-Reservation Lands

Agency actions that provide the opportunity to expand Tribal traditional management are an efficient way to achieve shared goals, as well as fundamentally supporting the sovereignty of traditional knowledge.

- **Expand interpretation of USFS Stewardship Agreements.** *These have been interpreted as contracts in the West, but in other parts of the US are interpreted more broadly. The local interpretation of stewardship management can and should be broadened.*
- **Development of long term fire management strategy.** Implement existing national level USFS directive to work with local communities to plan for catastrophic fires, especially in the face of climate change. At present, when fires occur offices are understaffed and perpetually in “emergency mode.”
- **Honor Tribal Consultation Agreements.** There are countless instances of the USFS and other agencies failing to follow through on agreements made during Government to Government Consultation.

- **Evaluate how emerging policies and procedures related to climate change may affect Tribal sovereignty.**
- **Promote Use of the Tribal Forest Protection Act** As outlined in the Intertribal Timber Council report, the USFS can expand use of TFPA through performance incentives and accountability measures, budget direction, monitoring, reviews, and development of direction and guidance.
- **Establish and maintain sustained personal relationships between individuals** (*NCAI, Walk Softly*)
- As recommended by the Intertribal Timber Council report “**Improve agency understanding of Tribal Forest Protection Act, government-to-government relationships and trust responsibilities** by conducting joint training (i.e., general Tribal relations training currently in development by the USFS and adaptation of modules produced by the Intertribal Timber Council) and providing post-training technical support” (2013).

Mechanisms To Enhance Intergovernmental Project Collaboration

“Expand collaborative land management, community and fire response opportunities across all jurisdictions, and invest in programmatic actions and activities that can be facilitated by Tribes and partners under the Indian Self-Determination and Education Act (as amended), the Tribal Forest Protection Act, and other existing authorities in coordination with the UN Declaration on the Rights of Indigenous Peoples”

-- Key Recommendation of the NCWFMS (DATE p. 5).

- As recommended by the Intertribal Timber Council report **Strengthen the partnership between the FS and Tribes through formal agreements** to institutionalize working relationships, forums, exchanges, collaborative project planning, engagement in national forest plan revisions, coordinated federal hazard fuel funding, and collaborative efforts to maintain viable infrastructure for utilization of forest products
- As recommended by the Intertribal Timber Council report “**Explore opportunities to develop intergovernmental agreements** between FS and BIA to enable use of authorities such as self-determination contracts or self-governance compacts” (2013,6)
- As recommended by the Intertribal Timber Council report local agencies should “**Undertake a Tribal outreach effort to inform Tribes about the TFPA** and encourage its use, including notice of training opportunities and distribution of technical assistance materials, such as templates for preparation of TFPA proposals along with descriptions of FS administrative guidance and proposal review processes”

- **Require Agency Trainings on working with Tribes, Cross-Cultural Communication, the Colonial legacy of the USFS, Tribal Management Priorities and the Public and Tribal Trust Responsibilities of Federal agencies.**

Research Priorities

While research priorities are often set at the national level, statewide, regional and local agencies also participate in the conception as well as implementation of research projects. **Local entities must design, conduct and carry out research priorities as mentioned in the National recommendations. Local actors must also seek out and use existing peer-reviewed research on the relationships between humans and nature** in the forest landscape when preparing their NEPA analyses. See also longer listing of specific research priorities on national strategies.

Bibliography

Abate, R.S., & Kronk, E.A. (2013). *Climate Change and Indigenous Peoples: The Search for Legal Remedies*. Edward Elgar Publishing, Cheltenham.

Adger, W.N., Barnett, J., Brown, K., Marshall, N. & O'Brien, K. (2013). Cultural dimensions of climate change impacts and adaptation. *Nature Climate Change* 3: 112–117

Agrawal, Arun. 2002. "Indigenous knowledge and the politics of classification". *International Social Science Journal*. 54 (173): 287–297

Agrawal, Arun. 1995. "Dismantling the Divide Between Indigenous and Scientific Knowledge" *Development and Change*. 26 (3): 413–439.

Alvarado, Ernesto, et al. 2011. "Integration and Application of Traditional Ecological Knowledge and Modern Science for Contemporary Wildland Fire Management in Tribal Lands of North America." *Proceedings, International Wildland Fire Conference, South Africa*

Baldy, C. R. 2013. Why we gather: traditional gathering in native Northwest California and the future of bio-cultural sovereignty. *Ecological Processes*, 2(1), 1-10.

Bannister, Kelly, and Preston Hardison. 2006. "Mobilizing traditional knowledge and expertise for decision-making on biodiversity." *IMoSEB Case Study*.

Bannister, Kelly, Maui Solomon, and Conrad G. Brunk. 2009. "Appropriation of Traditional Knowledge: Ethics in the Context of Ethnobiology." *The Ethics of Cultural Appropriation*: 140-172.

Bennett, T. M. Bull, Nancy G. Maynard, Patricia Cochran, Robert Gough, Kathy Lynn, Julie Maldonado, Garrit Voggesser, Susan Wotkyns, and Karen Cozzetto 2014 Ch. 12: Indigenous Peoples, Lands, and Resources. *In Climate Change Impacts in the United States: The Third National Climate Assessment*. Jerry M. Melillo, Terese Richmond, and Gary W. Yohe, eds. Pp. 297-317. Washington, DC: U.S. Global Change Research Program.

Berkes, Fikret *Sacred Ecology* Taylor and Francis, 2007

Berkes, Fikret, Johan Colding and Carl Folke 2000. "Rediscovery of Traditional Ecological Knowledge as Adaptive Management" *Ecological Applications*, 10 (5): 1251-1262

Briggs, J. and Sharp, J. 2004. *Indigenous knowledges and development: a postcolonial caution*. *Third World Quarterly*, 25 (4). pp. 661-676.

Briggs, J. 2005. The use of indigenous knowledge in development: problems and challenges. *Progress in Development Studies* 5(2):99-114.

Bowrey, Kathy, and Jane Anderson. 2009. "The politics of global information sharing: Whose cultural agendas are being advanced?." *Social & Legal Studies* 18.4: 479-504.

Burkett, M. 2013. Indigenous environmental knowledge and climate change adaptation. In: Abate, R.S. & Kronk, Elizabeth A. (eds.): *Climate Change and Indigenous Peoples: The Search for Legal Remedies*. Edward Elgar, Cheltenham. pp 96-118

Climate and Traditional Knowledge Workgroup (CTKW). 2014. Guidelines for Considering Traditional Knowledge in Climate Change Initiatives.
<http://climatetkw.wordpress.com>.

Colorado, P., and D. Collins. 1987. "Western scientific colonialism and the reemergence of native science." *Practice: Journal of Politics, Economics, Psychology, Sociology and Culture*: 50-65.

Ellen, Roy F., Peter Parkes, and Alan Bicker, eds. *Indigenous environmental knowledge and its transformations: critical anthropological perspectives*. Vol. 5. Psychology Press, 2000.

Galanda, G. S. 2010. "The Federal Indian Consultation Right: A Frontline Defense Against Tribal Sovereignty Incursion," *Federal Bar Association Indian Law Section*, 9 December 1-12, at. 1.

Goodman, Ed. 2000. "Protecting habitat for off-reservation Tribal hunting and fishing rights: Tribal co-management as a reserved right." *Envtl. L.* 30 (2000): 279.

Goodman, Edmund J. "Indian Tribal sovereignty and water resources: Watersheds, ecosystems and Tribal co-management." *J. Land Resources & Envtl. L.* 20: 185.

Greene, Shane. 2004. Indigenous People Incorporated? *Current Anthropology*. 45(2)

Harding, Anna, et al. 2012. "Conducting research with Tribal communities: sovereignty, ethics, and data-sharing issues." *Environmental health perspectives* 120.1: 6.

Hardison, P. D., and Kelly Bannister. 2011. "Ethics in ethnobiology: History, international law and policy, and contemporary issues." *Ethnobiology. John Wiley & Sons, Hoboken New Jersey*: 27-49.

Hansen, Stephen, and Justin VanFleet. 2003. "Traditional Knowledge and Intellectual Property: A Handbook on Issues and Options for Traditional Knowledge Holders in Protecting their Intellectual Property and Maintaining Biological Diversity."

Harris, Gary R Lynn, Kathy, Katie MacKendrick, Hannah Satein, 2009 "Effectiveness of the Federal-Tribal Relationship." Northwest Forest Plan Tribal-Federal evaluation 1994-2008 <http://www.reo.gov/monitoring/reports/15yr-report/Tribal/index.shtml>

Hill, Christina, Serena Lilywhite, Michael Simon 2010 *Guide to Free Prior and Informed Consent*. Oxfam

Heckler, Serena (ed) *Landscape, Process and Power. Re-evaluating Traditional Environmental Knowledge*. Birghahn: 2012.

Janke, Terri. *Writing up Indigenous Research: authorship, copyright and Indigenous knowledge systems*. Sydney: Terri Janke, 2009.

Jones and Jenkins "Rethinking collaboration: Working the indigene-colonizer hyphen" Denzin, N. K., Lincoln, Y. S., & Smith, L. T. *Handbook of critical and indigenous methodologies*. Los Angeles: Sage, 2008. .

King, Mary Ann. 2007. "Co-Management or Contracting-Agreements between Native American Tribes and the US National Park Service Pursuant to the 1994 Tribal Self-Governance Act." *Harv. Envtl. L. Rev.* 31: 475.

Lonetree, A. 2012. *Decolonizing museums: Representing native America in national and Tribal museums*. Chapel Hill: University of North Carolina Press.

Mason, L., White, G., Morishima, G., Alvarado, E., Andrew, L., Clark, F., Durglo, M., Sr., Durglo, J., Eneas, J., Erickson, J., Friedlander, M., Hamel, K., Hardy, C., Harwood, T., Haven, F., Isaac, E., James, L., Kenning, R., Leighton, A., Pierre, P., Raish, C., Shaw, B., Smallsalmon, S., Stearns, V., Teasley, H., Weingart, M. & Wilder, S. 2012. Listening and learning from traditional knowledge and Western science: a dialogue on contemporary challenges of forest health and wildfire. *Journal of Forestry*. 110(4): 187-193

McGregor, Deborah. 2005. "Traditional ecological knowledge: An Anishnabe woman's perspective." *Atlantis: Critical Studies in Gender, Culture & Social Justice* 29.2: 103-109.

McGregor, D. 2008. "Linking Traditional Ecological Knowledge and Western Science: Aboriginal Perspectives from the 2000 State of the Lakes Ecosystem Conference." *The Canadian Journal of Native Studies* XXVIII: 139-158.

Nadasdy, Paul. *Hunters and Bureaucrats: Power, Knowledge, and Aboriginal-State*

Relations in the Southwest Yukon. Vancouver and Toronto: UBC Press, 2003.

Nadasdy, Paul. 2007. The gift in the animal: The ontology of hunting and human-animal sociality. *American Ethnologist*

National Cohesive Wildland Fire Management Strategy Phase III: Western Regional Science Based Risk Report, 2013
www.forestsandrangelands.gov/strategy/.../reports/phase3/WesternRegionalRiskAnalysisReportNov2012.pdf

NCAI Policy Research Center and MSU Center for Native Health Partnerships. *Walk softly and listen carefully: Building research relationships with Tribal communities* Washington, DC, and Bozeman, MT: 2012.

Norgaard 2007 *Preliminary Social Impact Assessment Report*, Karuk Tribe of California.

---- 2004 *Effects of Altered Diet on the Health of the Karuk People* Karuk Tribe of California.

Norgaard, Kari M., Reed, Ron and Van Horn, Carolina 2011. "A continuing legacy: Institutional racism, hunger and nutritional justice on the Klamath." pp. 23-46 in A. Alkon and J. Agyeman (Eds.), *Cultivating Food Justice: Race, Class and Sustainability*. Cambridge Massachusetts: The MIT Press.

Norgaard, Kari Marie. 2014. "The Politics of Fire and the Social Impacts of Fire Exclusion on the Klamath." *Humboldt Journal of Social Relations* 36: 77-101.

O'Neill, Catherine, et al. 2012. "Conducting Research with Tribal Communities: Sovereignty, Ethics, and Data-Sharing Issues." *Environmental Health Perspectives* 120: 6-10.

Parrotta, J.A., Troster, R.L., editors. *Traditional Forest-Related Knowledge: Sustaining Communities, Ecosystems and Biocultural Diversity*. World Forest Series vol. 12. Springer, Dordrecht, the Netherlands. 2012.

Pevar, S. *The Rights of Indians and Tribes* (3rd ed.). New York, 2002

Riedlinger, D. & Berkes, F. 2001. Contributions of traditional knowledge to understanding climate change in the Canadian Arctic. *Polar Record*, 37, pp. 315-328
doi:10.1017/S0032247400017058

Sherman, Kathleen Pickering, James Van Lanen, and Richard T. Sherman. 2010. "Practical environmentalism on the Pine Ridge Reservation: confronting structural constraints to indigenous stewardship." *Human Ecology* 38.4: 507-520.

Simpson, L. (2004). Anticolonial strategies for the recovery and maintenance of indigenous knowledge. *American Indian Quarterly* (AIQ), 28(3-4), 373-384.

Smith, H. A., and K. Sharp. 2012. Indigenous climate knowledges. Wiley Interdisciplinary Reviews: *Climate Change* 3:467-476

Turner, Nancy J., Marianne Boelscher Ignace, and Ronald Ignace. 2000. "Traditional ecological knowledge and wisdom of aboriginal peoples in British Columbia." *Ecological Applications* 10.5: 1275-1287.

Tsosie, Rebecca A. 2003. "The Conflict between the 'Public Trust' and the 'Indian Trust' Doctrines: Federal Public Land Policy and Native Nations." *Tulsa Law Review* 39: 271.

Tsosie, Rebecca. 1996. "Tribal Environmental Policy in an Era of Self-Determination: The Role of Ethics, Economics, and Traditional Ecological Knowledge." *Vt. L. Rev.* 21: 225.

Tsosie, Rebecca A. 2007. "Indigenous people and environmental justice: the impact of climate change." *University of Colorado Law Review* 78: 1625.

Tsosie, Rebecca. 2009. "Climate change, sustainability and globalization: charting the future of indigenous environmental self-determination." *Envtl. & Energy L. & Pol'y J.* 4: 188.

Turnbull, David. *Masons, Tricksters, and Cartographers: Comparative Studies in the Sociology of Scientific and Indigenous Knowledge*, Taylor & Francis, 2000.

Voggesser, Garrit, et al. 2013 "Cultural impacts to tribes from climate change influences on forests." *Climatic change* 120.3 (2013): 615-626.

Watson-Verran, Hellen and David Turnbull. "Science and Other Indigenous Knowledge Indigenous Knowledge Systems." pp 115-139 in S. Jasanoff et al (eds) *Handbook of Science and Technology Studies*. Thousand Oaks and London: Sage Publications, 1995.

Western Regional Strategy Conference, 2012 Phase III of the National Cohesive Wildland Management Strategy Regional Science-Based Risk Analysis Report

Whittaker R. H. 1960 Vegetation of the Siskiyou Mountains, Oregon and California *Ecological Monographs*. 30: 279-338.

Whyte, Kyle Powys. 2013. "Justice forward: Tribes, climate adaptation and responsibility." *Climatic Change* 120.3: 517-530.

Whyte, K. Powys 2013. "On the role of traditional ecological knowledge as a collaborative concept: a philosophical study." *Ecological Processes* 2:1-12;

Wildcat, Daniel *Red Alert Saving the Planet with Indigenous Knowledge* Golden Colorado, Fulcrum Press, 2009

Williams, T.; Hardison, P. 2013. Culture, law, risk and governance: Contexts of traditional knowledge in climate change adaptation. *Climatic Change* 120(3): 531-544

Wood, Mary Christina, and Zachary Welcker. 2008. "Tribes as Trustees Again (Part I): The Emerging Tribal Role in the Conservation Trust Movement." *Harv. Envtl. L. Rev.* 32: 373.

Wood, Mary Christina, and Matthew O'Brien. 2008. "Tribes as Trustees Again (Part II): Evaluating Four Models of Tribal Participation in the Conservation Trust Movement." *Stan. Envtl. LJ* 27: 477.

Wood, Mary Christina, 1995. "Fulfilling the Executive's Trust Responsibility Toward the Native Nations on Environmental Issues: A Partial Critique of the Clinton Administration's Promises and Performance," 25 *Environmental Law* 733-800.

Wood, Mary Christina. 2009. "Advancing the sovereign trust of government to safeguard the environment for present and future generations (Part 1): ecological realism and the need for a paradigm shift." *Envtl. L.* 39: 43.

Wood, Mary Christina. 1994. "Indian Land and the Promise of Native Sovereignty: The Trust Doctrine Revisited," *Utah Law Review* 1471-1569.

Wood, Mary Christina. 2003. "Indian Trust Responsibility: Protecting Tribal Lands and resources through Claims of Injunctive Relief against Federal Agencies." *Tulsa L. Rev.* 39: 355.

Wood, M. C. 2006. "Restoring the Abundant Trust: Tribal Litigation in Pacific Northwest Salmon Recovery." *ENVIRONMENTAL LAW REPORTER NEWS AND ANALYSIS* 36.3: 10163.

