

Uncovering Implicit Western Science and Indigenous Values Embedded in Climate Change and Cultural Resource Adaptation Policy and Guidance

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ABSTRACT


Climate change discourse ranges from an acknowledgement of ancestral prophecy to the most urgent crisis of our time. If the terminology – words, concepts, and expressions – of discourse is understood to reflect a writer’s values, perspectives, and ways of knowing, then it is important to compare the terminology used by various writers to understand key value differences. This paper provides an initial exploration into the explicit and implicit differences in terminology surrounding climate adaptation planning from the perspective of federal agencies and Tribal Nations as represented in two climate adaptation guides. As the act of utilising the same words but in different ways will likely result in conflict, we also explored the links between the values-based differences in terminology with three policies – one written from a Tribal perspective and two that govern federal agencies’ stewardship of cultural resources – to assess the implications for climate adaptation of ancestral heritage located on federal lands. It is important to note that the space to compare terminology between federal and Tribal perspectives is vast; though this paper represents only an introductory step into this space, the results demonstrate a clear need to develop a process of co-constructing a shared climate adaptation terminology.

KEYWORDS


United States; Indigenous; discourse analysis; climate change; climate adaptation; policy review; Indigenous traditional ecological knowledge; terminology analysis; cultural resource management

Introduction

Climate change alters landscapes and impacts places that hold a multitude of heritage resources and meanings.¹ Critical to protecting these landscapes is the inclusion of connected and dependent communities as consulting parties or stakeholders in climate

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adaptation planning.² In the United States (US), public land managers are required to formally consult with affiliated groups (e.g. Tribal Nations, Native communities, Indigenous Peoples) when federal agencies make decisions – including adaptation planning and disaster response – that might affect heritage sites or objects. Yet, formal consultation processes do not always meaningfully incorporate the input federal agencies receive.³ When engaging with one another, federal and Tribal governments face challenges like knowledge system differences,⁴ resource typology discrepancies, management divisions,⁵ and stewardship goal and practice misalignments.⁶

Here, we explore another challenge facing climate adaptation planning of heritage resources on public lands, namely how the terminology (i.e. concepts, and expressions) – and their underlying values – in federal policies and guidelines generate miscommunications and perpetuate Western science decision-making processes that continue to harm Indigenous Peoples. Due to the variability across individual state laws and across different nation's laws, we focus our analysis on US federal policies and guidelines affecting federally recognised, Sovereign Tribal Nations. However, similarities from US federal laws and policies with those of US states and other nations being written from a Western Science perspective expand the likely implications of our findings to a broader audience than the US federal government, particularly those audiences also governed under post-European colonial regimes that prioritise objective, analytical, and reductionist knowledge (i.e. Western science).

Linking knowledge systems are key to addressing ways in which all communities mitigate, adapt and build capacity for resilience in face of climate change.⁷ In a US context, the National Park Service (NPS) is the leading federal agency charged with cultural heritage guidance and issued a policy directive,⁸ which stipulates that all future management decisions for heritage are to prioritise those resources that are both significant and most at risk to climate change impacts. Yet, policies and guidelines can act as a form of 'policing' heritage site protection through authorised heritage discourse⁹ and data governance.¹⁰ For example, Western science implies a strong sense of urgency to adapt cultural resources, like the Climate-Smart Planning Strategy published by the National Park Service in 2021, while Tribal Nations express concern for the potential loss of their places and ways of life and have generational knowledge of natural and accelerated changes to the environment.¹¹

Our work: (a) documents the implicit and explicit commonalities and differences in terminology used in two climate change adaptation guidelines, the Cultural Resources Climate Change Strategy published in 2016 by the US National Park Service and the Tribal Adaptation Menu published in 2019 by the Great Lakes Indian Fish and Wildlife Commission based in Minnesota, Wisconsin and Michigan. It (b) explores themes used in two US federal policies intended to protect cultural heritage, and one guidance document developed by the Climate and Traditional Knowledges Workgroup to enhance the prevalence and security of Traditional Knowledges (TKs) in climate change initiatives among non-Tribal partners. We focus on cultural resource guidance and policies, as Western science and resource management bifurcate heritage as natural or cultural. We acknowledge this false dichotomy cannot represent the holism central to Traditional Knowledge systems. We hope our work presents opportunities for collaboration, fosters continued interest in de-siloing natural and cultural resource management, and supports calls for co-management in a changing climate. We believe that our contribution

highlights an issue that impacts Indigenous Peoples and local communities worldwide, particularly those whose traditional use areas are stewarded by government agencies created following European colonisation and administered from a predominately Western science lens. Working together to agree on the words, terms, and metaphors used to discuss important places and materials affected by climate change creates the space to ground discussions in values and creates shared and co-created terminology that weave and prioritise diverse knowledge systems and a history of injustice at the outset of future climate adaptation planning efforts.

Background

The US Constitution recognises the sovereignty of federally recognised Tribal Nations each with their own governments, laws, and lands. Currently, there are 574 federally recognised Nations. Additionally, federal statute and law protect the interests of these Nations in instances outside of their boundaries where the federal government has jurisdiction, like national parks and monuments managed by the National Park Service (NPS). As a federal agency, the NPS is an important player in representing the US government when engaging with Tribal Nations. However, Native Americans have been systematically displaced and excluded from impactful decision-making about their land, resources, and cultural property in the US and around the world.¹² The American Indian Movement, formalised in 1968, is a coordinated resistance effort from Native Americans and allies towards Indigenous civil rights.

Activism and movements led by Native Americans in the 1960s and 70s paved the way for the Self-Determination era, the current era of Native American engagement, that instituted policies increasing rights and claims of Tribal Nations over their own heritage.¹³ This type of legislative advocacy led to the passage of the 1975 *Indian Self-Determination and Education Assistance Act* allowing federally recognised Tribes to determine how federal resources be used in their interest. In 1994, the US government legitimised the control of federally recognised tribes over some federal programs through the *Indian Self Governance Act*, focusing on the benefit and sovereignty of Tribal Nations. Additionally, 1992 amendments to the *National Historic Preservation Act* mandated consultation with Tribal Nations. The relationship between the US government, Indigenous communities, and Tribal Nations, however, has a long history of US agencies breaking treaty rights,¹⁴ which raises questions of symbolic versus actual change¹⁵ and the effectiveness of formal consultation.¹⁶ Sovereign Tribal Nations have individual jurisdictions and govern by their own laws, customs, and culture; yet, Tribal Nations must also adhere to US federal laws, a contradiction that sows confusion across Indian Country fully demonstrating the persistence of Colonialism persists over Indigenous systems and practices.¹⁷ A list of key decisions in the US judicial system, as well as the policies and guidance documents analysed in this study are presented briefly in [Table 1](#).

Clear understanding of Indigenous rights requires that federal agencies critique federal policies – particularly US Indian law, which encompasses the field of law governing relationships between the US government and any or all Tribal Nations¹⁸—and identify ways in which federal policies are continuously harmful to Tribal Nations. Federal agencies are required to follow and enforce policies, including mandated consultation in advance of federal project planning, yet agency personnel may not realise the consultation process

Table 1. Key policies, decisions, and guidance documents describing relationships US federal government and sovereign Tribal Nations in cultural resource management and climate change adaptation planning as related to this study.

Year/ Amendment	Act/Guidance	Description	Impact
1974	<i>Archeological and Historic Preservation Act (AHPA)</i> ^{**}	Legislative act of US Congress protecting the preservation of historical and archeological data that might be impacted by federal projects.	Created a responsibility on federal agencies and contractors to protect archaeological sites during federally funded projects, as well as authorize funding for reporting.
1974	<i>Boldt Decision (United States vs. Washington)</i> ^{***}	Series of decisions between the state of Washington and US government, named after the Judge George Hugo Boldt who enforced the upholding of the decision.	Re-affirmed the rights of American Indian tribes in the state of Washington to co-manage and harvest fish, and to reinforce the US Government's responsibility to uphold its treaties.
1975/1994/ 2000	<i>Indian Self-Determination and Education Assistance Act</i> ^{***}	Legislative act of US Congress reversing an effort by the federal government to sever treaty relationships with and obligations to Indian Tribes.	The Act and its amendments allowed certain government agencies to make contracts directly with federally recognized Tribes, as well as developing government-to-government relationships.
1979/1988	<i>Archeological Resource Protection Act (ARPA)</i> ^{***}	Legislative act of US Congress which governs the excavation of archaeological sites on federal and Native American lands.	Gives Tribal Nations more input on what and how their cultural patrimony is treated.
1990	<i>Native American Graves Protection and Repatriation Act (NAGPRA)</i> ^{***}	Legislative act of US Congress focused on repatriation.	Requires federal agencies and institutions that receive federal funding to return Native American cultural items and human remains to lineal descendants and culturally affiliated Tribal Nations.
1966/1992 (amendments)	<i>National Historic Preservation Act (NHPA)</i> ^{***}	Legislative act of US Congress focused on preserving historic and archaeological sites in the US.	Created and funded Tribal Historic Preservation Offices.
2014	<i>Guidelines for Considering Traditional Knowledges in Climate Change Initiatives (GCTKCCI)</i> ^{**}	Guidelines created by a self-organized, collaborative working group inspired by the 2014 Third National Climate Assessment.	A framework designed to increase understanding of issues related to Traditional Knowledges (TK) in climate initiatives and interactions between holders of TKs and non-Tribal partners.
2016	<i>Cultural Resources Climate Change Strategy (CRCCS)</i> [*]	Guidance developed and adopted by the US National Park Service.	Describes cultural resources, broad categories of climate change impacts, and integrating stewardship with current practices.
2019	<i>Tribal Climate Adaptation Menu, Dibaginjigaadeg Anishinaabe Ezhitwaad (TAM)</i> [*]	A framework to weave Indigenous and traditional knowledge, culture, language and history into the climate adaptation planning process.	A collaborative partnership led by Indigenous and Tribal citizens to inform Western scientists.

Key:

*Policies and guidance analysed in Phase I: Terminology analysis.

**Policies and guidance analysed in Phase II: Policy analysis.

***Other relevant policies and guidance.

was created to maintain agency control in decision making (i.e. agencies must collect input from affiliated Tribal Nations and demonstrate how or how not to include that input into decisions, yet are not required to follow direction from Tribal Nations). US policies and laws pertaining to treaty rights and heritage preservation were written from a Western colonial and conservation perspective and neglect the cultural, social, and economic connections that Tribal Nations have with place, particularly their ancestral homelands.¹⁹ One way to mitigate the harm of these practices is in how federal agencies consider the terminology used to communicate and derive meaning in consultative situations, especially since these communicative exchanges rely on the expression of Indigenous values and knowledge systems. Place meanings and Indigenous Peoples' historical and cultural connections are related and understood through nomenclature and discourse²⁰ that reflect knowledge of ecosystem diversity and dynamics as well as past adaptations.²¹ All policies in the US are required to be written in English and historically have not been developed through collaboration with Indigenous knowledge keepers or Tribal Citizens.

Collaboratively defining terms and concepts serves to reveal shared or divergent values. In public land and resource management, finding shared values strengthens trust,²² and can help rebuild relationships that lead to improved land management and resource stewardship. However, it is important to acknowledge that there is no collective voice representing all Tribal Nations and their perspectives²³ and some places and resources are traditionally used by multiple Tribal Nations with different values and priorities. It remains important to recognise that establishing a uniformly shared terminology is unlikely, necessitating federal agencies to initiate, welcome, and document these value-focused conversations and collaboration repeatedly. Implementing these strategies for considering terminology supports pathways for meaningful consultation with Indigenous communities and are, ultimately, necessary where co-management is the desired outcome.²⁴

Although there are examples of the weaving of values and perceptions of Tribal Nations on public lands,²⁵ Tribal values and perceptions are systematically collected but not always considered or incorporated into final decisions.²⁶ For example, Tribal values and input might be misinterpreted or discounted by Western scientists and, therefore, not authentically considered and included during planning and decision making. A recent and well-known example is the consultation challenges for the Dakota Access Pipeline, where Tribal Nations affected by the installation of the pipeline were not consulted, not consulted in a culturally sensitive way, or unable to reply to requests for consultation because of a chronic lack of staff.²⁷ Additionally, citizens and staff of Tribal Nations are often required to work within a governance system designed for and by Western scientists, planners, and managers. In response, Tribal Nations create positions within their Nation to respond to consultation requirements, without which they cannot meet their requests for consultation.

Often consultation requests fall within an unachievable timeline given capacity (e.g. funding, workload, staffing) constraints.²⁸ Implementing and interpreting feedback from Tribal Citizens during consultation is based on a 'reasonable and good faith' effort, keeping the power in the hands of the agency.²⁹ Inability to access places and data by citizens and staff of Tribal Nations are major barriers to meaningful consultation between agencies and Indigenous People. Not all databases

and archives owned and managed by federal agencies are open to the public – including Tribal Nations – unless granted permission. Additionally, federal datasets are often incomplete, terms are not clearly defined, and terminology is overly specialised (i.e. overly academic). For example, the NPS Cultural Resource Inventory System is not open to the public, is difficult to keep up to date, but is used to guide decision making about maintenance and stewardship of cultural resources. These access restrictions to places and information hinder not only meaningful consultation and collaborative decision-making between the agency and Tribal Nations, but also Indigenous sovereignty and governance of their own cultural patrimony.³⁰

While the practice of formalised power-sharing has long existed, the first explicit use of the term ‘co-management’ between the US government and Tribal Nations appears in the late 1970s; the term was first formally conceptualised to mediate the management of salmon in Washington State through the Boldt Decision.³¹ Since then, the call for co-management – especially between the National Park Service and surrounding Tribal Nations – has become more prevalent³²; yet, the phrase co-management may mean different things in different contexts.³³ In the present moment, we are met with the specific context of a drastically changing climate that is already shaping the way we approach the stewardship of cultural and natural resources.

While the idea of consulting citizens and staff of Tribal Nations is reasonable, at least superficially, we argue that a robust sharing of management power cannot remain possible without reconciling inequity from the outset. Native Americans have been systematically displaced and excluded from impactful decision-making about their land, resources, and cultural property in the US and around the world.³⁴ The American Indian Movement, formalised in 1968, is a coordinated resistance effort from Native Americans and allies towards Indigenous civil rights. Working on declaring the values and meanings behind the terms used in describing management outcomes is one place to address the dissonance. As previously explored, the history behind US policies and laws written from a Western Science perspective and currently upholding much of co-management strategies in America today are fundamentally flawed as their conception failed to incorporate Tribal Nation sovereignty, specifically the government-to-government consultation process in that management preferences only need to be considered not contingent. Furthermore, we argue that the federal government’s value system—one that failed to valorise or uphold in practice Tribal Nations as sovereign – is inherently embedded in the terms and terminology (i.e. words and phrases) used for these policy documents; policy documents and their constitutive language become crucial reflection points of the people who wrote them and the contexts in which they were written, described in more detail in the subsequent sections.

We argue that co-management, a process that may entail a reconciliation of value systems, cannot happen without taking a step back to examine the terminology used. For more meaningful co-management and consultation, differences in value systems should seek a common ground where the terminology used is contextually relevant to all parties, and established on a shared understanding of key terms, concepts, and expressions.³⁵ To examine this approach, we document and explore the differing ways that climate change is approached by federal agencies and Tribal Nations in different policy documents highlighting the values embedded in the terms and their context.

Methods

This project began with a goal to foster engagement between US-based Tribes and federal agencies – particularly the US National Park Service – for managing archaeological sites, approached as traditional use areas, in a changing climate. We designed a two-phased approach for analysing the terminology used in current guidelines and policy from Tribal and federal government perspectives. The first phase focuses on the terminology in two climate adaptation guidance documents to characterise the abstracted positions of US Tribal governments and US federal governments; the second phase connects the findings to policy implications and the pragmatics of the terms and values expressed in two US documents (one policy and one law) and one guidelines document that represents Tribal and Indigenous perspectives. We describe both phases and present reflexive commentary from the paper's non-indigenous authors below.

Phase I Methodology: Terminology Analysis

We examined terminology used in two documents: the Cultural Resources Climate Change Strategy (CRCCS) and the Tribal Adaptation Menu (TAM). The CRCCS was written by staff of the National Park Service in 2016 and is the current management guidance behind the agency's approach for managing cultural resources in a changing climate³⁶; the document embodies many Western approaches towards climate change science and the stewardship of Cultural Resources. The TAM, written between 2017–2019 and released in 2019 by a coalition of 19 Tribal and non-Tribal partners in the Midwestern US, provides a Tribal, specifically Anishinaabeg, perspective expressed in English with Ojibwe and Menominee terminology translated.³⁷ Similar to the CRCCS, the TAM provides management guidance in the form of a menu, where users of the document are encouraged to pick and choose strategies. Three authors of this paper were introduced to the TAM at a tribally sponsored climate summit, where one of the co-authors of the TAM presented an overview training; the TAM has since become a familiar document. While the TAM is not intended to be representative of all Tribal perspectives, it is the first and likely the most widely recognised Tribal adaptation guidance across the US (e.g. presentations and training on its use have been provided at the National Tribal and Indigenous Climate Conference and the National Adaptation Forum). It must also be noted that investigating these two documents is only an initial step and that more documents and perspectives should be included in future analysis.

We began by creating a word cloud for each document consisting of all the words present in the writing. Words that were used more commonly were displayed in a larger font (see [Figure 1](#)). This simple technique provided a preliminary visual indicator towards some of the larger patterns we would further investigate. A quantitative representation of these word clouds can be found in Supplemental Online Materials, Table S1. The top-25 most used words in each document, including the word count and weight frequency of each word, are included in Table S1 in the Supplemental Online Materials. Since the length of each document varies, a weighted percentage (calculated by dividing the word count by the total word count) is also included to provide a more accurate indicator of the presence a term might hold in a document. Between the two documents, these weighted percentages range from 0.00 to 2.63%.



Figure 1. Word clouds depicting word frequency in the CRCCS (left) and TAM (right)

Our next step focused on individual terms. To prepare the texts, we used publicly accessible, online word processors to omit all punctuation and digits, converting all the text to lowercase letters, removing duplicate words within each document, and ordering all the words alphabetically. Then, we used a separate online word counter and index to identify unique and shared terms across the two documents. We made an initial list of individual words that caught our attention, keeping the impressions created from the word cloud in mind, and conducted regular debriefing conversations to articulate important themes. These themes were further discussed, including with National Park Service staff and authors of the TAM, and then finalised for consideration during Phase II: Policy Analysis.

Phase II Methodology: Policy Analysis

We reviewed three documents (a policy, a law, and a guidelines document): the Archaeological and Historic Preservation Act (AHPA) of 1974, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, and Guidelines for Considering Traditional Knowledges in Climate Change Initiatives (GCKCCI) published in 2014. We selected AHPA and NAGPRA because they established compliance regulations for federal agencies for managing cultural resources and are two of several primary policies that stipulate federal engagement requirements with federally recognised Tribal Nations. We selected the GCKCCI for its focus and widespread applicability to cultural resource management from Tribal perspectives and as a response to federal regulations and practices (authored by a group of 15 indigenous persons, staff of indigenous governments and organisations, and experts with experience working with issues concerning traditional knowledges). The GCKCCI serves as a specific example of how tribal knowledge should be protected and incorporated according to Tribal members (whereas the TAM focuses on the process of climate adaptation planning). This perspective is especially important in

contrast to the federal policies which do not describe how to consult with Tribal Nations and have historically neglected to meaningfully include Tribal voices in decision making.

We began our Policy Analysis by reading and selecting excerpts in the three documents relevant to the themes elicited in Phase I: Terminology Analysis. Using these excerpts as navigational aids, we examined the rest of the document to develop three primary findings that characterise the importance of aligning terminology when it comes to enacting policy.

Reflexivity Statement

As non-Indigenous people, the primary researchers' personal contexts and biases influence the research in its framing, process, and analysis, and recognise our limitations to portray interpretations of documents representing Tribal perspectives. As authors with a mixed background rooted in academia, public lands agencies, and cultural resource management, we reached out to two Indigenous colleagues (both work for their Tribal Nation's Tribal Historic Preservation Office/Department, and one co-authored the GCTKCCI) and invited them to provide a critique of our analyses and interpretations and contribute to this paper as co-authors. Additionally, we sought the guidance and wisdom of some of the writers of the Tribal Adaptation Menu related to our interpretations. It is important to note that we should have included the writers of the Tribal Adaptation Menu earlier in the process since their work was a focus of analysis for the project, and our failure to do so limited their ability to co-author this study with the authors. Future work can only ensure a collaborative effort when inclusion is proactively sought among all parties in advance of framing the entire research process.

Results

Results from Phase I: Terminology Analysis

The word analysis yielded ten key themes: four unique to the CRCCS, five unique to the TAM, and one shared between the CRCCS and the TAM. While these themes are not comprehensive representations of the CRCCS and the TAM, they reveal spaces for potential miscommunication between the authors of each document and the perspectives these authors represent. Importantly, our analysis was thematic in exploring similarities and differences between the documents by word count as well as the context of the words used.

The following section describes the ten key themes that emerged from our Terminology Analysis. Many of these themes are informed by the absence or presence of individual words. We present a more comprehensive and quantitative representation of the individual terms explored in each theme in the Supplemental Online Materials, Table S2.

Themes Unique to the CRCCS

- (1) *Climate change and its effects need to be measured.* Forms of the word *measure* only appear in the CRCCS. It is important to consider what is being measured and by what means. In the CRCCS, we see *changes*³⁸ and *effects*³⁹ being measured, primarily those associated with changes in the climate. Measuring allows scientists to compare observable changes over time and any compounding effects. The act of measurement could

potentially be connected to an ambition to keep the natural world under a sense of control and rely on decision making processes governed by reaction to metrics.

- (2) *The CRCCS details all impacts incurred by climate change as negative.* The CRCCS uses many different terms associated with the ways the environment is being *damaged* or experiencing *disaster*. Some specific examples throughout pages 22-24 include *contamination, corrosion, decay, desiccation, destruction, deterioration*; all of these terms were used only in the CRCCS. The sheer degree to which these words are being used and the range they encompass indicates the concept of damage as one of the prominent frameworks for the NPS's approach to climate adaptation. The overarching concept of damage and how it may be conceptualised differently from different perspectives can and should be further investigated.
- (3) *These negative disasters tend to concern only non-human actors in the physical landscape.* The types of damages mentioned in the CRCCS are often associated with non-human actors like damage incurred by a flood,⁴⁰ a volcanic eruption,⁴¹ a storm,⁴² or a fire.⁴³ This focus steers attention away from the potential for other types of damage, like the harm that could be done within socio-political relations between human actors and governments.
- (4) *The CRCCS factors park visitors as experiential stakeholders.* The word *visitor* is unique to the CRCCS.⁴⁴ Similarly, the term *interpretation* appears only in the CRCCS in the context of describing the responsibilities of park rangers when engaging with visitors to the park.⁴⁵ These concepts represent a unique understanding from the NPS's perspective regarding who the parks and the agency's preservation and educational efforts concern. The NPS's use of the word *visitor* neglects to recognise the distinctly Western notion of 'protected lands,' where visitors (i.e. the visiting public) are described as people who receive enjoyment but are not integral parts of shaping the landscape; visitors temporarily enjoying the landscape is emphasised by coordinated efforts such as the Interagency Visitor Use Management Council created to manage visitors and their impact on the landscape.⁴⁶ Furthermore, the CRCCS assumes visitors are a part of the present and are merely temporarily engaging with the land, rather than acknowledging the ways past ancestors and future generations may act as visitors as well. In conversations with TAM authors, they do not identify as *visitors* at National Parks or protected areas. In general, the CRCCS fails to take the necessary steps of unpacking to whom the term *visitors* refers, how this term may change under different time frames, and what the term even means for stewards of ill-gotten lands.

Themes Unique to the TAM

- (5) *The TAM discerns truth(s) and beliefs from science.* The use of the word *science* in the TAM was usually only in reference to titles of professional Western institutions or representations of Western science, like the 'Northern Institute of Applied Climate Science'⁴⁷ a 'Bachelor's of Science,'⁴⁸ or finally 'Citizen Science.'⁴⁹ From a Western perspective science and truth are easy to conflate. The TAM alone explicitly uses the words *truth*⁵⁰ and *belief*.⁵¹ The TAM team found it necessary to distinguish these concepts outright, while in the CRCCS the concepts *science, truth, and belief* are assumed and are not specifically called out. In this discernment, the TAM adds to a conversation about the ways *truths* and *beliefs* may be derived from various value systems, not just one founded in Western science.

- (6) *The TAM explicitly refers to the harm caused by Western beliefs.* The TAM alludes to the historical, and ongoing, harm caused by Western belief systems and the sanctioned 'experts' described in authorised heritage discourse. For example, the terms *colonialism/colonisation/colonisers/colony* and *exploitation* were used in the TAM to refer to historical and ongoing political injustices. Some of these words—*colonising, exploitation, and over-exploitation*—while present in the CRCCS, had their use restricted to refer to species, plants, and animals in an ecological context.
- (7) *The TAM promotes a long-term view of time relative to the planning effort and overall climate change effects – extending forwards into the future and backwards into the past.* The TAM uses the term *dedication* solely in reference to the amount of effort and time required to plan effectively with the community.⁵² The difference in approach to time is a continued theme throughout the document. For example, the TAM consistently emphasises the need to learn from and be guided by elders, recognising the roles they play as liaisons to knowledge from the past; in contrast, the CRCCS focuses on the present and the future. This emphasis on *intergenerational* knowledge and the *legacies/legacy* one leaves behind reflects a sensitivity for time far beyond the present. It is notable the extensive presence of the words *regenerate/regenerating/regeneration, reseed/reseeding/seed/seedbed/seeding/seedling/seedlings*; this terminology surrounding growth, planting, and regeneration hints towards thinking beyond the present generation and how what we do today will affect the future.
- (8) *The strategies provided in the TAM are a starting point and depend on context.* In the TAM, the questions posed within the planning framework are open-ended and intended to be answered by the reader in his/her/their context; open-ended questions parallel open-ended strategies. Related words that are unique to the TAM include *encourage/encouraged/encouraging*. Such an open approach requires a discussion of the set of contexts and values that ultimately motivate evolving choices rather than restriction.
- (9) *At its core, addressing climate change means understanding relationships.* Some of the most used words in the TAM include *community, beings, tribal*, all forms of relationships and social connections. For example, the TAM recognises the importance of a relationship between *human* and *nonhuman* beings, encompassing entities from fish to rock. Additionally, the TAM uniquely characterises the passing of *knowledge* as a gift-giving relationship.⁵³ Lastly, the TAM often uses the terms *please* and *you* often, which personalises the relationship between the writers of the TAM and its readers; this personalisation may be to simultaneously avoid an assumed hierarchy between author and receiver. Related words that are unique to the TAM include *interpersonal, interrelationships, intertribal, love, reciprocity*. The word *respect* was shared across both documents (the CRCCS and the TAM); however, the term was used as a noun to refer to a feeling of relational consideration between beings in the TAM,⁵⁴ whilst in the CRCCS it was used to only as a prepositional phrase (i.e. *with respect to*).

Themes Shared Between the CRCCS and the TAM

Though most of our attention has been directed towards words unique to each document and the larger themes these words may represent, it is important to recognise potential points of overlap between the two documents.

- (10) *Both documents mention a need for planning.* The terms *mitigation*, *management*, *planning*, and *strategy* appear in both documents. The values behind the larger theme of management, however, may differ. The themes unique to the CRCCS and the TAM, as detailed in the previous sections, are helpful in beginning to distinguish how federal and Tribal representatives may approach management differently. For example, Theme (1) about measurement in the CRCCS reflects a general desire from a federal managerial need to express control over all resources through metrics and going to whatever means necessary to maintain levels of acceptable measurables. This approach is not always reciprocated in Tribal perspectives. For some Tribes, like the Houlton Band of Maliseet Indians as described by one of our co-authors, management means accepting that not everything can be saved and, instead, devoting more attention to the most culturally important ancestral objects and places. Furthermore, traditional ways of knowing tend to emphasise that what may be considered by a federal managerial perspective as 'lost' is still returning to the Earth within an Indigenous worldview. Alternatively, for other Tribes, like the Confederated Salish and Kootenai Tribes as described by another of our co-authors, the practice of planning may be challenged by the notion of prioritisation, as all things are considered to be important and connected.

In conclusion, themes of *planning* and *management* are shared between the CRCCS and the TAM. Each using these terms as derived from different values that are determined through different processes, each weighing knowledge and inclusion to differing degrees. These discrepancies in values bear immense weight in the decision-making process of turning plans into action.

Results from Phase II: Policy Analysis

While the first phase of results analyses the use of terminology, this subsection presents an elaboration of the implications that such differences in terminology usage can have on policy implementation and interpretation. The terminology used in the Native American Graves and Repatriation Act (NAGPRA), the Archaeological Historic Preservation Act (AHPA), and the Guidelines for Considering Traditional Knowledges in Climate Change Initiatives (GCTKCCI) revealed three emergent themes: the concept of possession, the concept of risk, and the act of defining. Misinterpretation within these themes are barriers to the protection of Traditional Knowledge and Indigenous sovereignty. In [Table 2](#), we present a visualisation of the connection between the findings from the Terminology Analysis to the Policy Analysis. The colour gradation indicates the degree of relevancy between the terminology and policy themes, with darker colour indicating the highest relevance.

Table 2. Degree of relevance between terminology analysis and policy analysis themes.

Terminology Analysis Themes	Policy Analysis Themes		
	Theme 1: Concept of Possession	Theme 2: Concept of Risk	Theme 3: Act of Defining
Theme 1: Climate change and its effects need to be measured.			
Theme 2: The CRCCS details all the different kinds of harm incurred by climate change.			
Theme 3: These negative disasters tend to concern only non-human actors in the physical landscape.			
Theme 4: The CRCCS factors park visitors as stakeholders.			
Theme 5: The TAM discerns truth(s) and beliefs from science.			
Theme 6: The TAM explicitly refers to the harm caused by Western beliefs.			
Theme 7: The TAM promotes a long-term view of time relative to the planning effort and overall climate change effects — extending forwards into the future and backwards into the past.			
Theme 8: The strategies provided in the TAM are a starting point and depend on context.			
Theme 9: At its core, addressing climate change means understanding relationships.			
Theme 10: Both documents mention a need for planning.			

Note: Dark green indicates highest relevance, light green indicates notable relevance, and white indicates little relevance.

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Concept of Possession

The first theme that emerged from analysing the selected policy documents surrounds the terminology used to describe the *concept of possession*. As argued by Moreton-Robinson, a coloniser state’s control over indigeneity is rooted in white possessive logics where laws and policies continue to treat Indigenous peoples and their ancestral homelands as property.⁵⁵ Currently, terminology in federal policy frames processes of excavation and removal of interred objects in the name of discovery. For example, NAGPRA concerns ‘Native American human remains and objects’⁵⁶ when they have either been ‘discovered’⁵⁷ or ‘intentional[ly] excavat[ed] and remov[ed].’⁵⁸ As such, objects become objects-of-value only after excavation or discovery. This sentiment is equally present in the Archaeological Resource Protection Act of 1975. Yet, these processes of removal, whether intentional or not, are crucial because they effectively remove remains and funerary objects from their specific location and context, making it easier to lay claims of possession and control by non-Indigenous stakeholders or federal agencies. NAGPRA describes this effect as ‘relinquishing control.’⁵⁹

Once federal agencies have control over these objects, NAGPRA outlines their possession over the ‘records, catalogues, relevant studies or other pertinent data’ useful for ‘determining the geographic origin, cultural affiliation, and basic facts surrounding acquisition and accession of Native American objects subject to this section.’⁶⁰ While “[s]uch information shall be provided in a reasonable manner to be agreed upon by all parties’, Indian Tribes and Native Hawaiian organisations are described to only have access to this information ‘upon request.’⁶¹ This wording from NAGPRA privileges federal agencies in their position to provide knowledge to Tribal Nations. Furthermore, consultation is only required by law if the project is federally funded or on federal land; if the lineage of the

object or remains are determined to be associated with Native Americans; and if the lineage is determined to be from a federally recognised Tribal Nation. These parameters are determined, described, and bestowed by the federal government, perpetuating the devaluing of heritage values established in authorised heritage discourse. NAGPRA encodes an epistemological system of expert knowledge based on the activities of discovery performed by the federal government.

This situation becomes complicated when we look at how knowledge about archaeological materials is considered from a non-federal perspective. The terminology used in Tribal documents – like the GCTKCCI – describes this relationship between Tribal Nations, federal agencies, and sacred information as one of ‘custodianship by knowledge holders’ in which federal agencies function as the knowledge keepers. The GCTKCCI makes it clear, however, that holders of TK do not simply have a ‘basic acquaintance’ of knowledge⁶² but are, rather, experts within a rich internal system of norms, beliefs and traditions.⁶³ This wording reflects Theme 9 from the results of Terminology Analysis (*Theme 9: Addressing climate change means understanding relationships*), in which the CRCCS heralds relationships, especially those concerning sacred knowledge, as the key to addressing climate change. GCTKCCI warns readers that Western legal traditions and conceptions of property do not accurately illustrate this specific type of relationship. Compared to the millennia of knowledge passed down generationally within Tribal Nations and relationships to the land that inhibits ‘ownership’ of it or associated resources, federal agencies cannot be properly equipped to function as knowledge holders since their position of ownership is only derived from relatively recent policy like NAGPRA. Furthermore, the issue of knowledge as property and corresponding intellectual property laws necessitates protections for TK, which continue to unfold in the US⁶⁴ and will likely prevent the federal government from ever being Knowledge holders.

On a more fundamental level, present-day federal policy falls short of properly addressing assumptions attendant to the concept of possession. While a law like NAGPRA tend to focus on objects and land, like ‘federal lands’ that are in possession of the United States, the GCTKCCI as a policy expands the definition of possession beyond objects to become inclusive of knowledge, calling for Western scientists to ‘understand the unique conception each individual tribe has of their own knowledge system(s),’⁶⁵ ‘recognize that tribal experts and TK holders are the authorities of their own knowledge systems, and deserve to be treated as such,’⁶⁶ and that ‘holders of TKs identify themselves using their own concepts.’⁶⁷ The TAM reflects this same sentiment regarding what can and cannot be measured (*Theme 1: Climate change and its effects need to be measured*) and, therefore, possessed; though the TAM characterises knowledge as possessable, NAGPRA’s definition only encompasses tangible items like ‘unassociated funerary object[s], sacred object[s], or object[s] of cultural patrimony.’⁶⁸

Beyond the question of what can be possessed, law and policy have the ability to distinguish different types of possession. For example, Theme 4 from the Terminology section illustrates this point (*Theme 4: The CRCCS factors park visitors as experiential stakeholders*), highlighting the role of ‘visitors’ as stakeholders unique to the perspective of federal parks. With the creation of public lands like National Parks, the public became a prominent stakeholder in decisions made about the land and resources, and at the explicit exclusion of the Traditional stewards. Although visitors do not explicitly own federal parks, they are still implied in the question of possession. With the creation of federal public lands like the National Parks, the public – like tax-paying

citizens attending parks – became a prominent stakeholder in decisions made about the land and resources; the defining of this ‘public’ stakeholder often came at the explicit exclusion of Traditional stewards, however. NAGPRA distinguishes between ‘cultural patrimony’ and ‘property owned by an individual Native American,’ invoking an idea of possession by a cultural group compared to an individual⁶⁹; these different possessors hold distinct meanings. In addition, NAGPRA states that ‘[t]he ownership or control of Native American cultural items which are excavated or discovered on federal or tribal lands after the date of enactment of this Act,’ implying that objects must have an agreed-upon owner that makes decisions about the object or site from an arbitrary date and then into an infinite future.⁷⁰ Moreover, NAGPRA posits that ‘Native American cultural items not claimed ... shall be disposed of in accordance with regulations promulgated by the Secretary in consultation with the review committee.’⁷¹ Here, if no Indigenous person or Nation comes forward and the federal authorities fail to assign ownership, the federal government’s NAGPRA advisory has discretion to define the terms of possession in a system where all things must be owned.

The inherent implications within the concept of possession become critical points where misalignment and poor deployment of terminology can lead to profound ramifications and harm, including the appropriation or exploitation of knowledge and erasure of Indigenous realities. NAGPRA’s focus on the possession of tangible cultural items and human remains (rendered into property) completely fails to address the intellectual and intangible heritage attached to places and objects, particularly where ancestors and other belongings subject to NAGPRA are highly charged items that carry such intense cultural weight. Furthermore, the focus on possessing things ignores important associated knowledge and intangible values that are germane to significance: the information that makes a place or object ‘worth’ possessing, which again perpetuates a system of harm and erasure. A poignant example of this is that the US has not ratified the 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage.⁷² The GCTKCCI specifically deems current intellectual property law as inadequate when it comes to protecting Traditional Knowledge and tribes from such harm.⁷³ These ideas of harm re-emerge under the following section concerning the concept of risk.

Concept of Risk

In addition to the *concept of possession*, the *concept of risk* also poses a concern when analysing these three policies against one another. We recognise that the concept of risk is subjective and varies depending on the value systems from which it is derived. As previously explored in Terminology Analysis Themes 2 and 3 (*Theme 2: The CRCCS details all impacts incurred by climate change as negative; Theme 3: These negative disasters tend to concern only non-human actors in the physical landscape*), the policy terms used in federal documents highlight risks posed by physical harm; for instance, the destruction of the tangible elements in a landscape. The AHPA provides explicit protection beyond physical elements to encompass ‘archaeological data ... which might otherwise be irreparably lost or destroyed’ directly or indirectly during a federal construction project.⁷⁴ The GCTKCCI, however, explicitly frames the risk to intangible resources more holistically than the federal lexicon suggests. Specifically, the ‘Cause no harm’ approach in the GCTKCCI includes avoiding the potential abuse or misappropriation of TKs as it has been a repeated transgression in the past.⁷⁵ Recognising the history of misappropriating TK is

crucial to understanding this particular form of risk and its concern from a Tribal Nation or Citizen's perspective. Clarifying these nuances to the concept of risk are important as they inform the ethic of inclusivity as elicited as necessary for successful planning efforts, (*Theme 10: Both documents mention a need for planning*), to protect the being from said risk factors; if the values from which these understandings of risk are misaligned, then the plans of protection will be equally misaligned.

From the perspective of the US federal government, protection primarily calls for maintaining control-managing by measuring risk (*Theme 1: Climate change and its effects need to be measured*) while also identifying, documenting, and keeping inventory.⁷⁶ This sense of risk is dominated by a framework that operates upon monetisation and measuring metrics. When the federal government encounters resource loss as a possibility or a reality it immediately incorporates the concept of compensation through monetisation and metrics. The AHPA only refers to compensation in the case of loss for projects, neglecting to recognise lost archaeological objects and their intrinsic intangible qualities recognised by Tribal Nations or other TK holders. Most egregiously, this move to metrics, how many things lost, and monetisation, what is the cost borne through mitigation, fails to recognise the fact that archaeological objects were located on project sites on land that was ancestral to and often taken from Tribal Nations in the first place. The AHPA handles items that are lost or destroyed; to include noting that 'such data is significant'⁷⁷ and 'are not being... recovered and preserved in the public interest'⁷⁸ ultimately fails to acknowledge other value systems outside of a Western perspective by assuming protection from federal agency staff, science, and preservation experts, or both will best conserve tangible heritage.⁷⁹

The preceding Terminology Analysis section – in particular, the discussion on harmful Western beliefs (*Theme 5: The TAM discerns truth[s] and beliefs from science*) and temporal views on climate change (*Theme 7: The TAM promotes a long-term view of time relative to the planning effort and overall climate change effects*) – provides more insight into one specific way neglecting differences in value systems may result in establishing divergent protection efforts, in particular, the way time prescriptions are incorporated into law. NAGPRA identifies very strict time frames by which action for decision-making should be measured: 30 days,⁸⁰ 90 days,⁸¹ or 120 days.⁸² These specified time frames work together to ultimately create a certain sense of urgency. Furthermore, this urgency only applies when 'such items are indispensable for completion of a specific scientific study, the outcome of which would be of major benefit to the United States.'⁸³ On the other hand, §3003 in NAGPRA instructs federal agencies to notify Native American groups within 6 months once a cultural affiliation has been determined by the agency, which is not the same sense of urgency for other discoveries or decisions. Again, as observed above, Tribal Nations are urged to hurry their efforts, and the government is given what appears to be a more relaxed expectation on reporting back to their Tribal constituents.

These differing understandings of risk can shape entire plans to climate change adaptations. For example, the GCTKCCI discusses many Indigenous groups taking their own initiative in protecting resources by 'proactively preparing for the impacts of climate change by carrying out climate change impact assessments and developing indigenous adaptation plans.'⁸⁴ Theme 7 (*The TAM promotes a long-term view of time relative to the planning effort and overall climate change effects*) of the Terminology Analysis provides insight on how adaptation plans are specific to context. Creating

plans of protection against risk has historically denied Tribal leaders access to information and equal treatment. Additionally, a proper understanding and communication of risks for Indigenous peoples and holders of TKs must include a recognition of the fact that sharing involves an expectation of reciprocity, meaning that “indigenous communities” own adaptive governance will benefit⁸⁵ and holding agencies accountable through ‘criteria in proposal review that recognizes and awards points to applicants that incorporate TKs within their proposals.’⁸⁶ Tribal groups also call for protection, ‘current intellectual property and copyright law in the US does little to protect TKs and tribes from appropriation or exploitation’⁸⁷ and to ‘provide specific directions to all agency staff, researchers and non-indigenous entities to ensure that protections for TKs requested by tribes and knowledge holders are upheld.’⁸⁸ Ultimately, value-laden concepts like ‘risk’ are highly context-dependent and are just one of many ideas that require intentional defining between parties.

Act of Defining

The third theme that emerged when reviewing the policies and GCTKCCI is the act of defining. This theme refers to how words used in the policies are to be interpreted relative to what they describe. This theme includes a call from Tribal Citizens for more candid conversations about each other’s definitions and values. In NAGPRA and AHPA, certain definitions are provided to the reader. NAGPRA begins with a section specifically for defining terms, where AHPA has a short definition section⁸⁹ that specifically defines what ‘the state’ includes. Both NAGPRA and AHPA are dedicated to definitions of objects, boundaries, and authorised governing bodies or defining who is officially recognised as a legitimate stakeholder in consultation and decision making. There is no acknowledgement that the terms defined and used in the policies were developed through consultation with Native People, despite being value-laden terms for both Western scientists and Tribal Citizens. §3001 of NAGPRA defines Native American as ‘a means of, or relating to, a tribe, people, or culture that is indigenous to the United States,’ missing the nuance and intricacies of Tribal Citizens, Nations, and their relationships to each other and the beings that they identify as being important to them (*Theme 9: Addressing climate change means understanding relationships*).

While definitions describe specific words and phrases, the chosen descriptor words themselves also require attention. The creation of common terminology is explicitly called for in Guideline 1 of the GCTKCCI, ‘Understand key concepts and definitions related to TKs,’⁹⁰ and Guideline 6, ‘mutually agreed terms’ and ‘use appropriate language.’⁹¹ Terminology is also described as an important way to protect knowledge and relationships, stating ‘Language is a source of indigenous identity with functions relating to sociocultural, socioreligious, and socio-political life ... [and] is a means of determining historical relationships between human communities and environment.’⁹²

Defining terms through consultation goes beyond words and includes how we communicate. NAGPRA and AHPA determine the expected ways of communicating, with terms like ‘shall give written notice’⁹³ and ‘shall notify, in writing.’⁹⁴ The GCTKCCI addresses potential differences in communication styles by advising agencies to ask which communication method is preferred. For example, in Objective 1, the GCTKCCI request agencies to “[f]ind out how to follow communication protocols and respectfully identify authorities in order to develop an appropriate approach for working with TK

systems in a partner community⁹⁵ as well as '[d]efine the roles and responsibilities of all partners clearly and carefully . . . according to the multiple perspectives of all partners (e.g. from customary law and research protocol format) . . . [and] define what information will be shared,⁹⁶ addressing both communication preferences and acknowledging that each cultural group varies.

How cultural groups define themselves from Indigenous perspectives and as Westerners often require different approaches. For example, citizens of Tribal Nations warn Western scientists to beware of outdated or inaccurate information. This nuance is particularly evident in Section 5 of NAGPRA that describes how to inventory human remains, and that the museums possessing these remains must catalogue and identify a culturally affiliated group, if possible. In the GCTKCCI, '[e]thnographic information historically collected and published by ethnologists or anthropologists on their cultures may reflect western bias or unfamiliarity that may not be appropriate for quotation or citation in contemporary presentations, reports or manuscripts.'⁹⁷ Furthermore, an important point is brought up that "[t]here is no fixed definition of indigenous peoples in international law, and it was not considered to be necessary for the adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), where it remains undefined, only referring to self-identification.'⁹⁸ Using a blanket definition of Native American can be potentially harmful when seeking consultation or identifying or repatriating objects and human remains.

The values embedded in terminology from a Western perspective rarely acknowledge spirituality and continuity of the past. The terms 'archaeological site' and 'historic' connote places and objects that are of the past, only exist in the interest of science objectivity, and are no longer connected to living peoples. NAGPRA mentions the links the present-day groups through the definition of cultural affiliation, explaining 'there is a relationship of shared group identity which can be reasonably traced historically or prehistorically between a present-day Indian tribe, Alaskan Native, or Native Hawaiian organisation and an identifiable earlier group.'⁹⁹ Additionally, TKs are articulated through different cultural and spiritual media¹⁰⁰ to 'protect tribal cultural heritage and cultural identity expressed both intangible and intangible forms by developing tribal laws'¹⁰¹ where defining does not only involve written words but also includes other media (e.g. rock art, petroglyphs, pictographs, conversations, oral histories, etc.).

Discussion

Whether it concerns the concept of possession, risk, or any of the themes previously explored in the Terminology Analysis section, an active process of shared defining is highlighted as the first step towards collaborative decision-making and policy generation. We hope this study, focusing on only a few documents and only within a US federal government – US Tribal Nations context, serves as an impetus to more expansively document the larger implications of the relationships between terminology and miscommunication, as it is directly related to systemic bias of TK and violations of Indigenous sovereignty. Firstly, we affirm the idea that individuals and institutions establish priorities (or not) and make decisions based on value systems; terminology analysis is a powerful tool to begin to peek into those value systems.¹⁰² Furthermore, comparing terminology provides insight

into potential differences between value systems, where implicit and explicit meanings are described by individuals within a specific structured knowledge system.¹⁰³

Because an individual's value-system guides their work,¹⁰⁴ differences in value-systems propped up by a history of systemic injustice and exclusion lead to mistrust and misunderstandings between groups regarding project goals, priorities, and perceived outcomes.¹⁰⁵ The values and knowledge systems that guide much of federal writing come from places that support generic 'goods' and are not broadly inclusive of other stakeholders and sovereign Nations.¹⁰⁶ These misunderstandings may be found in strategy documents (CRCCS or TAM) and in policy, law, and guidance documents (like AHPA, NAGPRA, and GCTKCCI). This paper's focus on climate change strategy documents influenced the emergence of specific concepts like urgency or risk. The concept of risk (or the question of 'what is at risk?') may serve to elicit differing value systems between the author groups and/or audiences. While the CRCCS emphasised physical factors of the environment, the TAM made sure to include more intangible factors that were at risk as well (e.g. the misappropriation of Traditional Knowledge, the consideration of beings and non-beings in planning). Such differences in the conception of risk represent potentially larger differences between Traditional Knowledge and Western science frameworks. Tribal perspectives emphasise holistic caretaking of and decision-making for beings that readily incorporate the intangible and tangible aspects of reality and the environment, as revealed in the TAM. Federal agencies that represent Western value systems, as revealed in the CRCCS, are more often concerned with preventing loss to save the strictly tangible. In the co-production of knowledge, value-laden terminology should be acknowledged at the outset and continuously reflected upon.

The management of shared resources requires the hearing and voicing of many voices, opinions, and perspectives on resource use and access, and examines what, by whom, if, and how they should be protected. There is clearly a need for planning in a changing climate, as impacts disproportionately and negatively affect politically and socially marginalised and excepted communities, who are often those who cannot adapt quickly.¹⁰⁷ Yet, the planning mechanisms used to enact action and adaptation, such as policies, laws, and directives, necessitate a shift to shared decision making, co-management, and co-creation of knowledge between federal agencies and Tribal Nations if they intend to reflect priorities and goals of Indigenous and Western stakeholders.¹⁰⁸ Land management agencies, like NPS, need to recognise Tribal Nations and their knowledge systems as the sovereign entities they are; they are not visitors with restricted access to places, information, and interpretation. These populations persist and survive on the land. The results of this study add to the literature about the shared decision-making process beginning with the co-creation of terms and concepts. When discussing and defining terminology together, a co-learning environment is created; both parties are listening to each other and creating an environment of empathy and cultural sensitivity.¹⁰⁹ Looking at the policies and guidelines analysed in this study a few important concepts came to the forefront that may require deeper conversation: urgency, risk, and possession.

The process of creating and defining common key terms found in policy or creating goals for adaptation planning may necessitate site visits that physically reconnect people to places. Shared resources are typically situated in a place, and that place may have a particular meaning, significance, or story tied to it. Native Peoples may have been separated from the land through colonial and federal processes that are currently invisible

or unknown to federal land managers. Being physically present activates phenomenological discussions that broaden 'Western' perspectives of management to include a holistic integration of nature and culture, people and place, and spiritual and cyclical timeframes. Particularly for climate adaptation planning, site visits may need to happen at each 'place' under discussion to better understand certain aspects of the landscape and to identify climate threats and stressors together. This is particularly important for federal or state lands with archaeological sites whose living ancestors have been excluded from the physical space for generations, and where the subsurface 'beings' and resources are largely intangible to all parties concerned.¹¹⁰ Furthermore, what is considered 'an object of cultural patrimony'¹¹¹ should be determined by those with associated lineal descendants or the closest cultural affiliation with the objects, as the Affiliated Tribes of Northwest Indians have asserted that is the true intention of NAGPRA.¹¹²

This granular level of work on terminology can affect resource stewardship policies and guidance that, in turn, shape our actions and influence the level of meaningful collaboration with associated Tribal Nations and their Traditional Knowledge keepers. We strongly advocate for the collaborative drafting of policy, and the re-evaluation of past efforts through an inclusive updating process. The eventual result should lead NPS and other federal land management agencies on a path to integrated resource management and eventual co-management of sites and landscapes as suggested by the Secretary of the Interior¹¹³ and as the goal of the current goal of self-determination for Native Nations in the United States of America. Some NPS units and other public land agencies are working towards change and working within the system by having more meaningful collaborations with associated Tribal Nations and creating site-level changes to co-manage, share data, and co-create data management plans, develop mechanisms in planning to have continual input and approval from Tribal Nations, and re-interpret sites. An example is at Grand Portage National Monument in Minnesota where NPS staff and the Chippewa Band of the Anishinaabe Ojibwe are working together to co-manage the monument area by giving the Tribal Nation complete control of the maintenance division, hosting cultural events on-site, designing a heritage centre together, and coordinating a summer mentorship program for Tribal youth.¹¹⁴ Having citizens and staff of Tribal Nations working side by side, with equity and justice, allows both parties to directly influence decision-making and discussions about their heritage.

Conclusion

We hope to create a shared understanding of practice, management and decisions for resources and protected areas through exposing pragmatic linguistic barriers common in dominant Western thinking and processes and exposing the likelihood for harmful miscommunication, intentional or not. Although we employed a US federal context, our contribution documents an issue that impacts Indigenous Peoples and local communities worldwide whose traditional use areas are stewarded by agencies that govern predominately from a post-European colonisation Western science lens. Acknowledging the legitimacy of Traditional Knowledges enhances protection of Indigenous sovereignty, rights, and practices, which differ globally. Creating empathy, forming trust, and sharing power by intentionally creating spaces to define and redefine terminology contributes to the decolonisation of Western science and resource management, while expanding and

appreciating the diversity of place meanings. Terminology not only shapes policy intended to protect places but also the stories we tell about the land and its people. Weaving Traditional Knowledges with Western science during climate adaptation planning and decision making brings forward the erased and neglected histories, knowledge, and connections, and hopefully encourages a closer look at other situations where uncovering the values hidden in terminology matters. We suggest stewardship agencies take the time to define the terms, concepts, expressions they use, describe the values embedded in that terminology, seek the ways in which those and other words are understood by Indigenous peoples and citizens of Tribal Nations, and co-construct values-explicit definitions to improve collaboration and strategies for climate adaptation and co-management of traditional use areas and ancestral objects located on Federal lands.

Notes

1. Baird, *Critical Theory*, 4–16; Henderson and Seekamp, “Battling the Tides,” 220; Rockman, “An NPS Framework,” 37; Sesana, Gagnon, Ciantelli, et al., “Climate Change Impacts,” 2.
2. Carmichael, Wilson, Namarnyilk, et al., “Local and Indigenous Management,” 233; Manrique, Corral, and Pereira, “Climate-Related Displacements.”; Seekamp and Jo, “Resilience and Transformation,” 42–43.
3. Hotchkiss, Seekamp, and McGill, “Strategies for Meaningful Engagement,” 413–414; Youdelis, “They Could Take You Out for Coffee,” 2–5.
4. Klenk, Fiume, Meehan, et al., “Local Knowledge,” 1–2.
5. Bloom and Deur, “Reframing Native Knowledge,” 3.
6. Whyte, “On the Role,” 9–10; Whyte, “Too Late,” 3–4.
7. Makondo and Thomas, “Climate Change Adaptation,” 89–90; Vogel, Moser, Kasperson, and Dabelko, “Linking Vulnerability,” 351.
8. National Park Service, *Policy Memorandum*, 14–02.
9. Baird, 63; Morgan, “Descendant Communities, Heritage Resource Law, and Heritage Areas,” 199–211; Smith, *Archaeological Theory*, 2–3.
10. Bloom and Deur, 18–19.
11. Makondo and Thomas, 83–84; Wildcat, “Introduction,” 511; Morel, Megarry, Potts, et al. “Global Research and Action Agenda,” 1, 35; Orlove, Dawson, Sherpa, et al., *ICSM CHC White Paper I*, 15, 20.
12. United Nations, “Indigenous Peoples.”; Zurba and Papadopoulos, “Indigenous Participation,” 91.
13. Smith, 2–3.
14. Dunbar-Ortiz, *An Indigenous Peoples’ History*, 7–14.
15. King, “Co-management or Contracting?,” 480.
16. Hinds, “Twenty-Five Years Later,” 142–143.
17. Carroll, Rodriguez-Lonebear, and Martinez, “Indigenous Data Governance,” 1–2.
18. Canby, *Indian Law in a Nutshell*.
19. Walter and Hamilton, “A Cultural Landscape Approach.”
20. Basso, *Wisdom Sits in Places*, 1–7.
21. Brown and Mitchell, “Culture and Nature,” 212–213.
22. Stern and Coleman, “The Multidimensionality of Trust,” 125.
23. Dunbar-Ortiz, 13.
24. Dockry, Gutterman, and Davenport, “Building Bridges,” 129; Gregory, Failing, and Harstone, “Meaningful Resource Consultations,” 36.
25. Manning, *Trust in the Land*; Flores and Russell, “Integrating Tribes and Culture,” 177–184.
26. Berkes, “Evolution of Co-management.”
27. Paterson, “Tribal Consultation.”

28. Richardson, "Interpreting Consultation."
29. Husk, "Scattered to the Winds?", 295.
30. Nicholas and Wylie, "Archaeological Finds."
31. Berkes.
32. Bussey, Davenport, Emery, and Carroll. "A Lot of It," 97–98.
33. Secretary of the Interior, *Order No. 3342*
34. United Nations; Zurba and Papadopoulos, 91.
35. Norström, Cvitanovic, Löf, et al., "Principles," 182–190.
36. Rockman, Morgan, Ziaja, et al. "Cultural Resources."
37. Tribal Adaptation Menu Team, "*Dibaginjigaadeg*."
38. *Ibid.*, 11.
39. *Ibid.*, 42.
40. *Ibid.*, 15.
41. *Ibid.*, 17.
42. *Ibid.*, 37.
43. *Ibid.*, 42.
44. *Ibid.*, 33, 40.
45. Rockman et al., 16.
46. United States Department of the Interior, "National Park Service Organic Act and its Implementation Through Daily Park Management" (2005); more information about the Interagency Visitor Use Management Council is found at visitorusemanagement.nps.gov.
47. Tribal Adaptation Menu Team, 2.
48. *Ibid.*, 5.
49. *Ibid.*, 25.
50. *Ibid.*, 9, 16.
51. *Ibid.*, 10, 16, 49, 50.
52. *Ibid.*, 11.
53. *Ibid.*, 12.
54. *Ibid.*, 11.
55. Moreton-Robinson, Aileen, *The White Possessive: Property, Power, and Indigenous Sovereignty*. University of Minnesota Press, 2015.
56. *Native American Graves Protection and Repatriation Act*, §3002.
57. *Ibid.*, §3002.
58. *Ibid.*, §3002.
59. *Ibid.*, §3002.
60. *Native American Graves Protection and Repatriation Act*, §3004.
61. *Ibid.*, §3004.
62. Climate and Traditional Knowledges Workgroup, *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*, 7.
63. Climate and Traditional Knowledges Workgroup, 5.
64. On November 15, 2021, the US White House shared a memorandum for US department and agency heads titled "Indigenous Traditional Ecological Knowledge and Federal Decision Making. This memorandum stated that Traditional Knowledge is only to be considered in federal decisions when facilitated through relationships with Tribal Nations and Native communities and in ways that respect knowledge holders to control access, dictate the use of, and benefit from its use.
65. Climate and Traditional Knowledges Workgroup, iii.
66. *Ibid.*, iii.
67. Climate and Traditional Knowledges Workgroup, 7.
68. *Native American Graves Protection and Repatriation Act*, §3004.
69. *Ibid.*, §3001.
70. *Ibid.*, §3002.
71. *Ibid.*, §3002.

72. United Nations Educational, Scientific and Cultural Organization, "Implementation of Standard-Setting Instruments | Part I | General Monitoring | Comprehensive Report by the Director-General on UNESCO's Standard-Setting Instruments." Paris, August 16, 2021.
73. Climate and Traditional Knowledges Workgroup, 6.
74. *Archaeological and Historic Preservation Act*, §1.
75. Climate and Traditional Knowledges Workgroup, ii.
76. *Native American Graves Protection and Repatriation Act*.
77. *Archaeological and Historic Preservation Act*, §469a-2.
78. *Ibid*, §469a-2.
79. It is critical to note based on the US Constitution and its amendments to American Indian Law, Native Americans are considered a population of citizens whose interests in federal lands and projects remain outside of the US public.
80. *Native American Graves Protection and Repatriation Act*, §3002.
81. *Ibid*, §3005.
82. *Ibid*, §3006.
83. *Ibid*, §3005.
84. Climate and Traditional Knowledges Workgroup, 8.
85. *Ibid*, 3.
86. Climate and Traditional Knowledges Workgroup, viii.
87. *Ibid*, 6.
88. *Ibid*, vii.
89. *Archaeological and Historic Preservation Act*, §469c-1.
90. Climate and Traditional Knowledges Workgroup, iii.
91. *Ibid*, vii.
92. Climate and Traditional Knowledges Workgroup, 16.
93. *Archaeological and Historic Preservation Act*, §469a.
94. *Native American Graves Protection and Repatriation Act*, §3002.
95. Climate and Traditional Knowledges Workgroup, 10.
96. *Ibid*, 7.
97. *Ibid*, 12.
98. *Ibid*, 2.
99. *Native American Graves Protection and Repatriation Act*, §3001.
100. Climate and Traditional Knowledges Workgroup, 3.
101. *Ibid*, 4.
102. Geertz, *Interpretation of Cultures*. New York: Basic Books, 1973.
103. Graeber, *Toward an Anthropology of Value*. New York: Palgrave Press, 2001; Graeber's insight here, based on Saussure's work, is that nouns are part of systems of meaning. Individual meaning is derived through their relationships with other nouns that are either present in the text or discourse, or ostensibly missing. We see this here in the instance of our comparisons between the different Native and Federal Climate Change frameworks.
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