A concern about shifting interactions between indigenous and non-indigenous parties in US climate adaptation contexts

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Abstract: Indigenous peoples everywhere are preparing for or already coping with a number of climate change impacts, from rising sea-levels to shifting harvesting seasons. It is plausible that the capacity for environmental protection of two political institutions will change in relation to certain impacts: treaties and indigenous governmental jurisdictions recognised by the federal governments of nations such as the USA or Canada. This essay explores critically whether current solutions for these changes depend far too crucially on non-indigenous parties' coming to an appropriate understanding of indigenous culture and self-determination.

Keywords: indigenous resilience; treaty rights; climate justice; environmental justice; indigenous health; indigenous environmental protection; ceded territory; collective rights; indigenous rights; indigenous nations; Indian reservation; United Nations Declaration on the Rights of Indigenous Peoples; indigenous sustainability.

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1 Indigenous health and climate change impacts

The term indigenous peoples refers to the roughly 370 million people globally who identify as being members of self-governing communities whose self-determination pre-exists an ongoing or historic invasion or period of colonisation, and who now live in territories in which some other nation, such as the USA or Australia, is recognised by most as the preeminent sovereign in that area. Indigenous peoples often see themselves as continuing cultures that are distinct from those of the nations that surround them (Anaya, 2004; Cadena and Starn, 2007; Sanders, 1977; Niezen, 2003). Indigenous peoples everywhere are preparing for or already coping with a number of climate change impacts, from rising sea-levels to shifting harvesting seasons. In North America, growing literatures are connecting climate change impacts to negative health outcomes and health risks to indigenous populations such as diminishing access to good nutritional sources and increases in exposure to pollution (Maldonado et al., 2013a; Voggesser, 2010; Abate and Kronk, 2013; Weinhold, 2010; Houser et al., 2000; McNutt, 2010; Grossman and Parker, 2012). One issue is whether the political institutions with which indigenous peoples engage for environmental protection can adequately address climate-related health outcomes and risks. Such political institutions include recognised indigenous territories, governments of indigenous peoples, treaties and other agreements between indigenous and non-indigenous parties, pan-indigenous organisations representing multiple indigenous governments, indigenous non-governmental organisations (NGOs) and networks that support indigenous participation in the political processes of other nations and international bodies, and laws and policies of nations that express indigenous rights (e.g., rights to ancestral territories, subsistence rights, and so on).

It is plausible that the capacity for environmental protection of two such political institutions will change in relation to certain climate change impacts:

1 treaties

2 recognised indigenous governmental jurisdictions such as reservation lands.

Both institutions often emphasise political relationships between certain indigenous peoples' governments and the federal government of the relevant settler nation (and other subnational governments by implication, e.g., states, provinces and the like). In response, some scholars, scientists and environmental professionals claim that indigenous peoples ought to build new terms of engagement for adaptation that include more than just federal partners and that invoke international rights frameworks such as the United Nations (UN) Declaration on the Rights of Indigenous Peoples. I argue that while such forward-looking institutions are promising and are becoming necessary developments in some cases, their capacity to support adaptation hinges largely on expectations that non-indigenous parties will – on the whole – come to respect indigenous cultures and self-determination in the absence of the political force (enforceability) of treaties or jurisdictions recognised by federal and subnational governments. Greater discussion is needed about this concern if indigenous peoples who have treaties or recognised territorial jurisdictions are to protect their community members' health in the face of climate change.

Before moving on, I wish to note that indigenous peoples use many hundreds of political institutions for environmental protection. Only a subset of indigenous peoples have treaties or federally-recognised jurisdictions – and this essay mainly refers to examples from the US context. Indigenous peoples also relate to and are affected by

climate change impacts in diverse ways, as the literature already cited demonstrates. Moreover, most indigenous peoples have had to adapt to many environmental and health challenges over the years and see their social and cultural systems as providing time-tested capital for adaptation, even in cases where non-indigenous parties assert great pressure and violence on indigenous peoples (Arctic Climate Impact Assessment, 2004; Colombi, 2012; Wildcat, 2009; Grossman and Parker, 2012; Anthony, 2013). Based on these realities, my essay represents a provisional effort to spark greater conversation on the implications of potential changes in the force of treaties and indigenous governmental jurisdictions due to certain climate change impacts. In the space allotted for the essay, I cannot do even remote justice to the incredible diversity and creativity of indigenous solutions for addressing climate change – sometimes called 'indigenuity' (Wildcat, 2009) and indigenous resilience (Colombi, 2012; Grossman and Parker, 2012). So this essay is a narrowly focused exercise aimed at generating further conversations on federally-recognised treaties and jurisdictions, and is based on parts of my presentations at the "The Interdisciplinary Aspects of Public Health and Environmental Justice" workshop on December 15, 2012, at Bethune-Cookman University, and the Center for Global Ethics at the City University of New York Graduate Center on December 5, 2013.

I will begin in Section 2 by describing some key literatures on indigenous peoples' health, climate change impacts, environmental protection and justice. I will show how USA recognised treaties and tribal jurisdictions are political institutions indigenous peoples in North America have oriented to serve environmental protection even though the USA often fails to understand their significance for indigenous cultures and self-determination. I will define these types of indigenous/US engagements as sites of interaction. In Section 3, I provide some examples demonstrating why it is plausible that some indigenous peoples will not be able to use the force of these political institutions to respond to certain climate change impacts. Section 4 follows by describing a set of solutions being put on the table from the literature. I then present challenges for some of the current solutions because they may depend far too crucially on non-indigenous parties' coming to an appropriate understanding of indigenous culture and self-determination. Section 5 concludes by discussing why these challenges are a concern for indigenous health outcomes and risks.

2 Indigenous peoples, justice and sites of interaction

Climate change poses multiple health concerns for indigenous peoples. Changes in aquatic and terrestrial habitats impact indigenous harvesting of plants and animals, which affects diet and nutrition (Lynn et al., 2013). Such changes can increase environmental health risks as exposure pathways for different forms of pollution are altered (Cave et al., 2011; De Chavez and Tauli-Corpuz, 2009). Many climate change impacts create challenges for the continuance of indigenous cultures, such as when the impacts engender indigenous communities having less access to sacred places or culturally significant species, and less opportunities to exercise intergenerational family relationships (Krupnik and Jolly, 2002; Whyte, 2013; Figueroa, 2011; Riley et al., 2012). Climate change impacts can be experienced psychologically through responses such as depression (Mears, 2012; Willox et al., 2011; Willox, 2012). Indigenous peoples, including urban communities in Canada and the USA, may be more susceptible to experiencing chronic

respiratory or overheating due to climate change impacts (Ford et al., 2010). Indigenous communities who are relocating in response to climate change impacts face numerous health concerns that are part and parcel of having – literally – to resettle an entire community to another area (Maldonado et al., 2013b; Shearer, 2011). Climate change policies, especially forms of vulnerability analysis or adaptation planning, may also shift focus away from other causes of health problems, such as threats to indigenous self-determination posed by encroaching institutions of settler colonialism, for example natural resources extraction and agrifood industries (Cameron, 2012; Cuomo, 2011). Climate change harms are often compounded by multiple other issues. For example, interest in resource extraction and the warming circumpolar region have increased the risk to indigenous women of being trafficked (Sweet, 2014).

Indigenous peoples' health concerns are issues of justice. Indigenous peoples often face unique and disproportionate health risks and outcomes because their communities' and governments' capacities for self-determination were and continue to be obstructed through colonial projects such as boarding schools, military aggression, corporate intrusions, economic marginalisation, bureaucratic obstacles and disrespect for indigenous cultures. Moreover, indigenous peoples may have less opportunities to participate in civic life and political-decision making in countries such as Canada, the USA and New Zealand, and are underrepresented in leadership roles in those countries (Weaver, 1996; LaDuke, 1999; Grinde and Johansen, 1995; Whyte, 2011, 2013; Clark, 2002; Grijalva, 2008; Glazebrook, 2011). Climate change impacts can be understood as integrally tied to patterns of injustice. Indeed, indigenous peoples contributed relatively little to anthropogenic climate change, but must shoulder the health risks and outcomes referenced earlier more severely, in many cases, than other populations (Maldonado et al., 2013a; Abate and Kronk, 2013; De Chavez and Tauli-Corpuz, 2009; McLean et al., 2011; Houser et al., 2000; Salick and Byg, 2007; McNutt, 2010). Finally, it is commonly argued that industrialisation and natural resources depletion such as deforestation emerge from values and cosmologies that are at odds with those of many indigenous peoples (Wildcat, 2009; Kari-Oca 2 Declaration, 2012; The Anchorage Declaration, 2009; The Mystic Lake Declaration, 2009; Mandaluyong Declaration, 2011; LaDuke, 1999). The social, cultural, economic, political and ecological implications of non-indigenous values and cosmologies, then, are imposed on many indigenous peoples who neither subscribe to them nor find them useful.

Responding to injustice, North American indigenous peoples have worked with different political institutions to help protect their community members' health from environmental hazards. Again, such political institutions include recognised indigenous territories, indigenous governmental structures and agencies, treaties and other agreements between indigenous and non-indigenous parties, pan-indigenous organisations representing multiple indigenous governments, indigenous NGOs and networks that support indigenous participation in the political processes of other nations and international bodies, and laws and policies of nations that express indigenous rights (Weaver, 1996; LaDuke, 1999; Grinde and Johansen, 1995; Whyte, 2011, 2013; Clark, 2002; Grossman, 2008; Middleton, 2013; Doolittle, 2010). Indigenous parties who engage with such political institutions range from governments, such as those of the Menominee Nation, the Confederated Salishand Kootenai Tribes and the Mohawk Council of Akwesasne, to organisations such as the Indigenous Environmental Network, The United League of Indigenous Nations, National Congress of American Indians, Great Lakes Indian Fish and Wildlife Commission, Indigenous Peoples Climate Change

Working Group, Indian Law Resource Center, Inuit Circumpolar Council, and the Tebtebba Foundation, among many others. These parties have engaged with political institutions within what I will call *sites of interaction*. Sites of interaction refer to the institutionally-mediated spaces in which various indigenous, non-indigenous and hybrid parties come into contact with, transact with and influence one another in order advance one another's political and cultural goals. They are sites involving different parties and diverse and sometimes overlapping expectations of the terms of deliberation, negotiation, networking, coalition and diplomacy. The concept of sites of interaction is not novel. Indeed, indigenous studies scholars have plotted such sites through concepts such as contact zones, third space, and middle ground, spaces of dialogue, among others (Bruyneel, 2007; Johnson, 2008; Corntassel and Witmer, 2008; White, 1991; Larson et al., 2008; Tsosie, 2007; Nadasdy, 2005; Richmond et al., 2013). Here, I will focus on a particular site of interaction that can be characterised as being both dominated by the discourse of non-indigenous parties and based on institutions whose political force involves fixed limits on indigenous peoples' environmental governance and stewardship.

In many cases, the discourses of sites of interaction (including language, structure of meetings, protocols, cultural norms and so on) are biased in favour of some of the parties. This is often so in sites of interaction involving indigenous peoples because the discourses tend to reflect the interests of dominant nations and cultures such as the USA. In the cases of political institutions such as treaties, the language and medium almost entirely reflects the interests and customs of non-indigenous parties. In light of this reality, concepts such as sites of interaction are important because they serve to highlight how indigenous peoples can exercise forms of collective agency even when the discursive cards are stacked against them – and when the non-indigenous parties are largely unaware of the degree to which their discourses obscure indigenous peoples' goals for cultural continuance and self-determination. I will provide an example in what follows. I will focus here on sites of interaction having to do with environmental protection. In some of these sites, indigenous parties are able to achieve certain (but often quite limited) degrees of environmental protection even when the discourses heavily favour the environmental interests of non-indigenous parties. In this sense, indigenous peoples have been able to protect certain aspects of their communities' health through environmental protection without requiring that non-indigenous parties accept discourses that appropriately and fairly express aspects of indigenous culture and self-determination such as 'traditional territory', 'customary law', 'forest stewardship', 'spiritual ties to the land', 'cultural sovereignty', and so on.

Consider the Inland Consent Decree of 2007 between the State of Michigan and five federally-recognised tribes in the upper and lower peninsulas of the state, the Sault Ste. Marie Tribe of Chippewa Indians, the Bay Mills Indian Community, the Grand Traverse Band of Ottawa and Chippewa Indians, the Little Traverse Bay Band of Odawa Indians and the Little River Band of Ottawa Indians. The consent decree is a settlement establishing how the five tribes and the state of Michigan will share land the tribes ceded in the Treaty of Washington in 1836 yet retain fishing, hunting and gathering rights to animals and plants in the territory. The Consent Decree is a long document that outlines parameters for where, when and how members of these tribes can engage in hunting, fishing and gathering in relation to and in coordination with the state. That is, it establishes fixed limits on the five tribes along with a basic dispute mechanism for situations such as when one party is perceived as overharvesting or mismanaging some

species. With the exception of the specific naming of culturally significant species, such as sturgeon, black ash and walleye, most of the language in the consent decree is in the discursive idiom of the state of Michigan (Inland Consent Decree, 2007). A reading of the Consent Decree gives the impression that it is simply enumerating the *special* regulatory authority of tribes and the *special* rights and limitations of tribal members beyond those members have as state residents and US citizens. As a political institution, the Consent Decree reflects US legal culture and interests, seeing tribes as special claimants on the USA. It gives the impression that the only reason for the Consent Decree is to settle with tribes based on the fact that tribes happened to have signed the 1836 Treaty.

Since the Consent Decree, the five tribes have worked to create expectations of deliberation and diplomacy with the state that have helped to engender a site of interaction that the tribes have used for environmental protection. The site has enabled many tribal members to participate in activities that promote their health, culture and their communities' self-determination through accessing first foods and living more traditional lifestyles. However, in the background is much more than just fixed limits. Jimmie Mitchell, a member of one of the five tribes, explains how the importance of the 1836 Treaty and Consent Decree is to protect the flourishing of the 'belief structure known as Baamaadziwin' or 'living in a good and respectful way' [Mitchell, (2013), p.22]. Baamaadziwin has been "in existence since time immemorial and has been passed on in the oral tradition from generation to generation to our present times". He emphasises that grasping Baamaadziwin involves far "more than basic instructions in a 'good and just way to live'". Rather, "as these teachings are learned, we are also introduced to the guiding spirits of Baamaadziwin, spiritual guides who will assist us on our new path till the end of our days on earth. This connection between spirit-world and our own is not obtainable by researching books or visiting the World Wide Web". Baamaadziwin involves intricate understandings of "our respective responsibilities, beyond that of being 'good and just' people – to being servants, devoting ourselves to making a difference in all that has occurred and may still be occurring within our respective communities and environment." It is about 'community-minded service', where the sense of community contains a responsibility for "restoring the balance of our shared natural environment and of all inhabitants who are dependent upon a robust ecosystem...." People, depending on their clan and other aspects of their identities, "are charged with various tasks and responsibilities within the communities: some possess the role of teachers, others protectors, hunters, and healers, and through the clan system a well-balanced community was ensured". Finally, Mitchell connects Baamaadziwin to larger earth-scale responsibilities. It involves the idea of Wegemend Aki, Mother earth, who is sacred. "As our tribal nations begin to grow strong again, we haven't forgotten our primary role: to mend the circle of life that has fallen so far out of balance,…original caretakers of the lands…" [Mitchell, (2013, pp.22–24].

Given Mitchell's rich description, it is important to note that the state does not need to understand Baamaadziwin in order to abide by the Consent Decree. While the Consent Decree is by no means perfect, it does not require an understanding of Baamaadziwin to function as something tribes can engage with for the purpose of environmental protection. Though many programmes that are facilitated by the Consent Decree involve educative components, the political force of the decree empowers the tribes to do things even when state residents and officials barely understand tribal cultural goals and self-determination. The force of the Consent Decree, then, is not entirely contingent on

Michiganders' coming to appreciate Baamaadziwin; moreover, state residents and other US citizens living and working in Michigan do not have to learn about Baamaadziwin or any other aspect of indigenous culture and self-determination in order to be required to yield to certain indigenous hunting, fishing and gathering practices. The Chippewa Ottawa Resource Authority (CORA, http://www.1836cora.org/), which "gathers all 1836 Treaty fishing tribes under its mantle" to support their stewardship of the ceded territories, engages in educational activities that seek to improve non-indigenous understanding of indigenous rights and culture. Yet the actual political force does not fully hinge on the success of these educational efforts, as the USA and state of Michigan have acknowledged the Treaty of 1836 and Inland Consent Decree of 2007.

Some might argue that the consent decree represents a liberal instrument that serves as a neutral arbiter of two different cultures, US and Anishinaabe. While the consent decree is certainly an arbiter, its language, structure and expression are entirely of the US and Michigan cultural and political discourse. This is why a concept such as site of interaction is preferable by my lights. The tribes use the consent decree for environmental protection yet it is not a political institution that they would have necessarily selected were they in the position to negotiate on more equal terms with the state of Michigan. In this sense, the consent decree is part of a site of interaction involving expectations of the terms of deliberation, negotiation and diplomacy that has helped facilitate some of what the tribes need to pursue Baamaadziwin. Some indigenous studies scholars can be read as suggesting that we should not buy into such political institutions because of the colonial biases they may carry (Alfred, 1999). I certainly agree; however, it is also true that indigenous peoples have engaged in such sites of interaction creatively and achieved important health and other environmental outcomes despite living in conditions of environmental injustice. The sites of interaction through which political institutions such as the Consent Decree have been used are important places of indigenous advocacy that protect indigenous languages, culture and conceptions of self-determination. They are one way, among many, in which indigenous peoples resist injustice.

3 Climate change and sites of interaction

For indigenous peoples recognised as sovereigns by the US federal government, two common sites of interaction involving fixed limits for environmental protection involve the political institutions of treaties and jurisdictional boundaries (such as reservation boundaries). In this section, I will outline a theory of how indigenous peoples have participated in the sites of interaction around these political instruments for advancing certain kinds of environmental protection. I then suggest why climate change impacts can be plausibly seen as presenting challenges for some of the political institutions involved in such sites of interaction. I will begin with treaties, though the consent decree example will be referred to again for the purpose of illustration.

Treaties: As described in the previous section regarding the Consent Decree, indigenous peoples ceded land to the USA through treaties and retain all the rights that were not formally relinquished or extinguished in the treaty. Moreover, many indigenous peoples formally included in treaties some rights to continue some of their lifeways, such as animal and plant harvesting, in the ceded territories. These rights are what are often referred to as treaty rights. The USA typically understands treaties as fixing the limits

within which indigenous peoples can or cannot do certain things. That is, the USA sees treaties as constraints on the actions of indigenous peoples. Stark shows, for example, that the above understanding of a treaty focuses on the rights and cessions enumerated in the treaty document itself. But that in many cases (Stark focuses on Anishinaabe treaties in North America), indigenous peoples understood the treaty as the entire process of negotiation. This process included numerous other agreements and communications leading up to the treaty document itself that indigenous peoples recorded into memory and expected the USA to abide by in the future (Stark, 2010). Though Stark shows that indigenous peoples realised over time that for the USA it was really the rights and cessions enumerated in the document that mattered as the source of political force. Throughout the 20th century, indigenous peoples in the Pacific Northwest and Great Lakes regions dealt with the reality that US states, citizens and other groups contested the indigenous rights that are vouched for in the treaty document. These conflicts were settled in court cases in the 1970s and 1980s, such as the Voigt and Boldt decisions, both of which served to clarify and enforce the limits of indigenous harvesting and management jurisdiction. As referenced earlier, states such as Michigan avoided litigation by entering into specific consent decrees with treaty signatory indigenous peoples, which further characterise legal limits and dispute processes. Internationally, similar issues pertain. For example, in land claims agreements (often called *modern treaties*), such as those in Canada, indigenous peoples have used them to delineate the areas where they can engage in customary practices and advise non-indigenous parties through co-management committees (Theriault, 2013). While non-indigenous parties have often viewed these political institutions as ways of fixing areas to which indigenous peoples have or no longer have access, many indigenous peoples interpret these institutions as ways of protecting indigenous peoples own customary practices such as Baamaadziwin, which I discussed earlier.

Sites of interaction have been created around treaty areas through the development of organisations chartered to manage treaties, such as the Northwest Indian Fisheries Commission (NWIFC), Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and CORA. These organisations have crafted programmes to work with the limits in order to support the health benefits associated with indigenous stewardship of certain plants and animals. They marshal their own legal, policy and scientific expertises, in combination with indigenous knowledges. Treaty organisations and programmes under treaties involve educational outreach components about treaty rights and indigenous cultures. Treaty organisations today, then, have established authority, large bodies of information about the ceded territory and political capital among the member tribes and other non-indigenous parties. Though much of what organisations such as GLIFWC do is work within the language of fixed rights and limits, they explicitly state that their purpose involves more than that. The Great Lakes Indian Fish and Wildlife Commission describes itself as beginning “in recognition of the traditional pursuits of the Native American people and the deep abiding respect for the circle of life in which our fellow creatures have played an essential life-giving role. As governments who have inherited the responsibilities for protection of our fish, wildlife, and plants we are burdened with the inability to effectively carry out tasks as protectors and managers. This is especially true now that the state and federal courts have recognized our traditional claims. We have never intended to abandon our responsibilities” (Great Lakes Indian Fish and Wildlife Commission, 1983).

Indigenous Jurisdictions: A similar site of interaction whose political force is based on limits occurs in the developments leading to contemporary governments of Federally-Recognised Tribes in the USA, which have primary authority over fixed indigenous jurisdictions such as reservation areas. Reservations came to be through treaties, executive orders or other actions by the US Congress, and tribal rights within reservations are more extensive than in the ceded territory because reservations are considered to be tribal homelands. The structures of these recognised tribal governments do not originate in indigenous systems of governance. Most of them come about through the 1933 Indian Reorganisation Act, the intent behind this was to facilitate extraction industry leases on indigenous lands (Pevar, 2011). These governments are supposed to be the predominate political authority on reservations. Legal developments in the 1970s improved the capacity of these governments to cultivate agencies that could promulgate enforceable rules, which was modelled after the policy doctrine of cooperative federalism, whereby states can manage federal programmes, such air or water quality programmes. States and tribes can set more stringent standards, and hence have leeway, but cannot fail to meet the federal minimums. Tribes must meet certain bureaucratic requirements in order to quality for Treatment as State Status set by the particular federal agencies.

Here, again, we have a situation where indigenous peoples understand policies such as TAS status as opportunities to pursue very different agendas from what the federal partners would have understood. The USA sees TAS status as further clarifying limits on the governments of Federally-recognised tribes. Yet, for example, the Pueblo of Isleta set water quality standards for the Rio Grande River running through its reservation jurisdiction that provided protection for 'primary contact ceremonial use' of the water. The Environmental Protection Agency approved and enforced these standards against the city Albuquerque, which had a wastewater treatment plant five miles upstream and complained that the tribe's water quality standards were too stringent in comparison to those of New Mexico (Fleder and Ranco, 2005). In this case, then, the tribal governments authority to set standards over its reservation area, or simply area of primary jurisdiction, was used to protect parts of their culture that the non-indigenous parties did not have to fully understand.

Part of the effectiveness of such sites of interaction involving treaties or tribal jurisdictions is that they have political force in the absence of genuine understanding of indigenous peoples' cultures and self-determination. They are enforceable despite there being a lack of awareness. Were the USA simply to stop respecting the fixed limits to which it had agreed, then indigenous peoples would lose substantive tools for the continuance of their cultures and self-determination. These are sites of interaction, then, in which one of the dynamics involves the multiple uses of fixed limits for indigenous purposes. Yet, climate change impacts can potentially overwhelm some of the political institutions that make up these particular kinds of sites of interaction. Consider some important cases. In treaties, areas where indigenous peoples can continue harvesting salmon or wild rice are fixed. Moreover, they are based on certain assumptions about the stability of ecological conditions in the treaty area (McIlgorm et al., 2010; Colombi, 2012; Krakoff, 2008; Houser et al., 2000). In the Pacific Northwest or Great Lakes, climate change is altering salmon and wild rice habitats. All of these changes challenge the usefulness of the various limits established by treaties. Salmon populations may shift out of the areas that have been fixed for indigenous use and wild rice may shift northward

(McNutt, 2010). In the Michigan fishery regulated by the 2000 Consent Decree (different from 2007), warmer waters may lead the populations of certain fish species to grow in tribal fishing areas where tribal catch limits are too low for meaningful fishing of those species (Consent Decree, 2000). In response, indigenous peoples may have to change where they do things within a treaty area, yield their rights to harvest in various zones or seek to go off a treaty area to have access to certain species or habitats. The behaviour of a range of different non-federal actors within the treaty area may become more significant owing to these changes, such as private or municipal land use. In all this, the key issue is that the limitations on which treaties and consent decrees are based do not fit the changing ecosystem to support indigenous peoples' capacity to adapt to climate change. McNutt discusses how:

> According to the Tulalip Natural Resources Department, "For the tribes, range shifts in native species will threaten their cultural existence. The treaty-protected rights of tribes to hunt, fish, and gather traditional resources are based on reservation locations and usual and accustomed areas on public lands. These locations are chosen to ensure access to culturally significant resources, whose locations were thought to be fixed. If the traditionally significant plants, animals, and aquatic species shift out of these areas, tribes will no longer have the same legal rights to them." The Tulalip add, "Even if rights to these species could be secured, without access, to use of these species will be virtually impossible… Few tribes can afford to purchase large territories of new land, and federal laws prohibit the transfer or expansion of tribal jurisdiction." [McNutt, (2010), p.8]

For McNutt, it is precisely the political force of fixed limits that is challenged by climate change. Tribal jurisdictions can be overwhelmed by climate change. For the Grand Portage Band of Lake Superior Chippewa in Minnesota, for example, moose are a culturally significant species for the community. When moose populations on the reservation drop below a certain number, the natural resources/environmental staff engage in more intensive moose stewardship. But climate change is altering moose habitat, which has concerned the staff; for the moose population may reach a point where there is nothing that can be done to keep moose within the reservation area. Because there is no governance authority off-reservation, the Band cannot do anything further to protect the relationship between tribal members and moose (Moore, 2013). In this example, the fixed limit of the reservation area is disoriented because it is out of sync with climate change. This case shows that indigenous peoples may not be able to engage in needed stewardship of culturally significant species because the species are moving off-reservation. Indigenous peoples will have to find ways of continuing their relationships with these species off-reservation, or changing their values more radically to suit the new habitats in reservation areas. A similar case has been made for legally-protected water rights in the Southwest. As with hunting, fishing and gathering rights in the Great Lakes and Northwest, indigenous peoples fought hard for protected access to water. But if outside climate change factors alter the amount and flow of water, then these legal means will no longer be effective in the same way for protecting water (Gautam et al., 2013).

In other countries, such as Canada, a similar worry is being expressed about the overwhelming of the political authority of fixed limits. Theriault describes how in the Canadian North:

> melting ice and changing snow conditions may restrict access to some territories for harvesting activities, thus reducing the total area where the rights guaranteed by the land claims agreements can be effectively exercised.

> Moreover, in response to climate change, the trajectory of some migratory species hunted by a group of Inuit may shift to territories that are not covered by their land claims agreement. Land claims agreements, however, do not expressively provide for the potential replacement of lands which can no longer be accessed due to shifting environmental conditions, for exercising harvesting rights nor for the renegotiation of the territorial boundaries where harvesting rights can be exercised in the event of a radical change in the migratory pattern of some animal species (Theriault, 2013).

Certain climate change impacts, then, are particularly disorienting for the political force of fixed limits. Sites of interaction involving political institutions that at least one of the parties understands as establishing fixed rights or limits can be changed. For the political force of a key political institution in the site of interaction is less usable by indigenous peoples for the purpose of environmental protection. Again, treaties and reservation jurisdictions are just a few examples of the many ways in which indigenous peoples pursue environmental protection and, now, climate change adaptation. Not all of these ways involve sites of interaction based on fixed limits. I am choosing to focus on these political institutions in this paper, bracketing other sites of interaction.

4 Shifting sites of interaction

Recent work by scholars, scientists and other environmental professionals discuss important solutions for how to address the disorientation of fixed limits. One set of theories discusses ways of changing the terms of treaties, engaging in litigation or treaty renegotiation, and re-affirming the full implications of treaties that non-indigenous parties often ignore (Colombi, 2012; Osofsky, 2006; Krakoff, 2008; Kronk, 2012; McNutt, 2010; Treaty Indian Tribes in Western Washington, 2011). I am not going to engage with that set of theories in this essay. A second set of theories, of which I am concerned in this essay, is based on changing the nature of indigenous environmental governance. The gist of the second set of theories is that indigenous peoples are going to have to work with more than just federal and state governmental partners in order to build in the flexibility and scalability needed to address certain climate change impacts. Indigenous peoples should also consider the policy frameworks in international law because these policies are cross-boundary in conception and can transcend fixed limits. In this sense, this second set of theories suggests that new sites of interaction must be created that are sufficiently flexible for adapting in ways that further environmental protection. I will describe two such versions of this solution. I will then suggest that each version hinges on the assumption that non-indigenous parties will achieve high – and perhaps unprecedented – degrees of understanding and sensitivity to indigenous cultures and self-determination. The versions of this solution are important to consider because they represent possible ways of envisioning future policies for environmental protection that will guard indigenous people's health in the face of climate change impacts.

In 'Recommendations to Native Government Leadership', Parker argues that indigenous peoples are going to have to work with more parties than just indigenous peoples and federal-level governments; in particular, they should also involve subnational governments, NGOs and neighbouring non-indigenous community groups. These other parties have advantages over federal governments because they can be more responsive to climate change, for they have more intimate relationships with the communities they

serve and are smaller in size. In this way, indigenous peoples could be able to influence how the actions of other communities affect plant and animal species that matter to their communities and even expand indigenous access to such species if their ranges move off reservation or off treaty area (Parker, 2012). This idea matches up well with trends in environmental governance, such as polycentric governance (Nagendra and Ostrom, 2012) and ecosystem fit (Folke et al., 2007). Parker emphasises the importance of these parties learning more about indigenous culture and self-determination in order to be able work effectively with indigenous peoples.

Colombi (2012), who writes on the Nimiipuu in the Pacific Northwest, argues similarly that if treaties are weakened, 'Nimiipuu leaders' will have "to ally with non-Indigenous peoples to strengthen and improve a common place and a common watershed." He cites previous "Nimiipuu partnerships with federal and state agencies and non-governmental organizations like the Nature Conservancy, Sierra Club, Idaho Rivers United, and Idaho Conservation League… as examples of Nimiipuu leadership and the adaptive capacity to create mutually beneficial partnerships" (Colombi, 2012). Colombi places emphasis on the importance of each parties' learning about one another. Houser et al. argue that "… trust relationships between the federal government and Native peoples" are "not impenetrable." Indeed, "new relationships are essential to address issues of climate change. While creating relationships with agencies of state governments has frequently been viewed by tribes as threatening their sovereignty, serious discussions about climate change – at the regional, state, and national levels – need to include informed stakeholders from every relevant jurisdiction" [Houser et al., (2000), p.372].

Middleton argues that indigenous peoples can avail themselves of the private tools of conservation, such as land trusts (LTAs), to manage off reservation or off treaty area species and/or landscapes. This will involve working with NGOs, business and other non-federal partners. Middleton also stresses the importance of learning, as land trusts will have to understand how to incorporate "Native interests into LTA goals", which "may require land trusts to become knowledgeable about federal Indian policy (historic and contemporary) and individual tribal traditional goals" [Middleton, (2011), p.4]. Gautam et al. (2013) indigenous peoples can network with different scientists and scientific organisations in order to improve climate change knowledge but also to support novel adaptations solutions, such as fish conservation technologies that compensate for changes in water quality. This solution involves scientists coming to a better understanding of how what they are doing can support indigenous peoples' culture and self-determination. McNutt argues that

> Tribes and local communities have the ability to work together as neighbors around common interests, such as land-use planning to prevent climate change problems, and emergency planning for the more disastrous impacts of climate change. Tribes can search for common ground with local, municipal and county governments, and provide models for them to learn from. In unstable climate conditions, local relationships are the most important. We cannot rely on state or federal assistance: look what happened after Hurricane Katrina. The smaller size of tribal and local governments can make them more flexible. Tribal and local governments can cooperate in joint land-use planning to prevent climate change problems, such as moving or building homes above floodplains, conserving and treating water, protecting shorelines and beaches from erosion, building and retaining floodplain walls, and controlling pests and diseases through local education [McNutt, (2010), p.12].

There are also examples of indigenous peoples creating their own treaty organisations among themselves, such as the United League of Indigenous Nations, which is constituted by Indigenous peoples from the USA, Canada and New Zealand, who signed the Treaty of Indigenous Nations. One of the purposes of the League is to "build intertribal cooperation outside the framework of the colonial settler states" [Grossman, (2008), p.5]. The league's climate change working group seeks to build different committees that "would include representatives from tribal or First Nation sovereign governments, indigenous community members, traditional harvesters, and spiritual leaders; and researchers, educators, and students." The exchanges among these different constituents "could help implement practical projects to adapt to (or mitigate survivable climate changes and develop joint responses to more destructive climate changes. These exchanges could include sharing information, connecting tribal youth, training harvesters of shifting plant and animal species, and ensuring access to food, water and power [Grossman, (2008), p.9]. The Quinault Nation of the Pacific Northwest recently has begun hosting representatives from nation states whose policies affect the Quinault's environment and economy. The nation seeks direct engagement with other nations, as opposed to engagement mediated by the USA, in order to achieve more effective international measures for environmental protection in relation to climate change (Gilio-Whitaker, 2013).

Another aspect of this theory involves greater emphasis on international indigenous law and policy, for international laws and policies are cross-boundary by conception. UNDRIP, for example, protects indigenous people's traditional subsistence economies (article 20), traditional plants, animals and minerals (Article 24), and spiritual relationships with their traditionally owed or otherwise occupied and used lands, territories, waters, and coastal seas and other resources (Article 25) (United Nations General Assembly, 2007). UNDRIP could be used as an institutional authority for justifying shifts in indigenous governance structures in response to climate change, such as a species population moving from a US jurisdiction to a Canadian jurisdiction. This approach is also similar to other international law approaches that seek to consider solutions for communities that are relocating in response to climate change impacts (Bronen, 2010; Maldonado et al., 2013b) or who face human trafficking (Sweet, 2014). UNDRIP is currently being used as part of the UN Reducing Emissions through Deforestation and Forest Degradation (REDD+) programme (Van Dam, 2011).

Each of these solutions is proposing the creation of more flexible sites of interaction that will improve the capacities of indigenous peoples to adapt to climate change in ways that protect their communities' health through environmental protection. While the sites of interaction discussed in the previous sections hinged on the political force of fixed limitations, these new sites of interaction hinge on more flexible relationships and policy frameworks. Such sites of interactions represent changes in who is deliberating, negotiating and engaging in diplomacy and how they engage in these activities. These shifting sites of interaction, however, are no longer based on non-indigenous parties' remaining unaware of indigenous culture and self-determination. Many of the sources cited mention explicitly the importance of learning and education. Moreover, for UNDRIP to be effective, non-indigenous parties have to understand what is specifically being referred to by 'traditionally owned plants, animals and minerals' and 'spiritual relationships'. Using treaties or reservation boundaries, non-indigenous parties did not – at a minimum – have to have as *much of an* understanding of these things. They primarily

had to respect the political force of the limitations. Any further education by groups such as GLIFWC would lead to improvements over time. Yet, the political force needed for environmental protection itself was not wholly contingent on non-indigenous parties having sufficient education to actually understand why indigenous peoples sought to engage in different harvesting or gathering practices.

Non-indigenous parties, then, are going to have to learn about indigenous culture and self-determination at a level of depth that they may have never had to have before. That is, non-indigenous parties will have to understand indigenous peoples' culture and self-determination such that they will be willing to accept and help facilitate certain adaptations in the absence of federal or state enforcement of fixed limits. Non-indigenous parties will have to accept the political legitimacy of organisations such as the United League of Indigenous Nations. Or non-indigenous parties will have to accept indigenous knowledges or scientific studies guided by indigenous values as sources of evidence for justifying certain shifts in harvesting or gathering. For example, there would have to be sufficient agreement on shifting distributions of fish populations in order for non-indigenous parties to accept indigenous governance in areas or in ways that have not typically been the case. Non-indigenous organisations, citizens groups and businesses would have to accept claims consistent with indigenous sovereignty even though they are not otherwise bound to do so. For example, to achieve shifts in harvesting off reservation or off treaty area, indigenous people's will have to be able to persuade non-indigenous peoples that such changes are warranted. They will have to convince them that UNDRIP applies to certain cases, as opposed to others. While UNDRIP is making a lot of progress, it is unclear whether it can be used in more stronger forms as a replacement for the enforcement authority of treaties or federally-recognised jurisdictions. There are also cases where *common ground* is established between a variety of indigenous and non-indigenous parties (Holtgren, 2013), and McNutt calls for the establishment of common ground. Yet, in cases such as sturgeon restoration (see Holtgren) non-indigenous parties already had an interest in sturgeon that was not, as far as I understand it, informed by having learned from any indigenous peoples. Yet nonetheless great efforts were required to bring the different parties together in the end. Given that climate change will affect many facets of indigenous peoples, it is questionable whether the bases of common ground could possibly be present organically across diverse parties concerning all such facets and whether the human and other resources required to support the efforts needed to bring parties together will be available.

Whether non-indigenous peoples are persuaded or understand indigenous climate adaptation needs will depend on how much they understand indigenous peoples' cultures and self-determination. They would be expected to understand a broader notion of indigenous self-determination than just a treaty right or jurisdictional border, a notion that would encompass Baamaadziwin, or the sovereignty of the Quinault Nation to negotiate with other nations or the United League of Indigenous Nations. While some of the literatures just cited point out examples where such sites of interaction can be cultivated well, it is an entirely different issue whether the solutions discussed should be understood by non-indigenous parties as the general policy for indigenous climate change adaptation in US contexts. It is unclear whether non-indigenous parties, on the whole, will achieve the requisite levels of learning for emerging sites of interaction to be usable by indigenous peoples for the purpose of environmental protection. Current experiences certainly suggest problems I am identifying here. Archer, a researcher, describes her experiences working in the Pacific Northwest:

> When the Indigenous representatives spoke about the pressing issues confronting the Columbia River, they spoke passionately of spirit, salmon and grandchildren. They called for a basin-wide approach to governance and emphasized the interconnectedness of all living things within the river basin. The bureaucrats smiled politely and spoke pragmatically of limited mandates, budget constraints, and overlapping political jurisdictions while simultaneously strategizing towards potential press releases. The gulf in understanding and intentions was palpable. At the core of the disconnection was a conflict of core values and different assumptions about the nature of our relationship with the river and its ecosystem [Archer, (2012), p.4].

Similarly, McGregor describes interactions between indigenous and non-indigenous parties in The State of the Lake Ecosystem Conference (SOLEC) sponsored by the US EPA and Environment Canada.

> During workshops presented by non-Native researchers, environmental agency staff seemed unaware of the potential value of Aboriginal contributions to the process. Non-native researchers appeared too ready to dismiss Native concerns raised, and seemed to have little experience working with Aboriginal people. Non-native presenters seemed to assume sole ownership of specific aspects of the SOLEC process such as indicator selection, and sometimes became defensive when challenging questions were raised by Native participants. The Native participants agreed that little can be accomplished until a greater respect is afforded TEK and Aboriginal input [McGregor, (2008), p.148].

In light ofthese experiences, an important implication of what I have discussed so far is that there needs to be some account of how to grapple with the unprecedented degrees of learning that would be needed to address the issue of non-indigenous parties overcoming their unawareness of indigenous culture and self-determination. For indigenous peoples that are part of sites of interaction involving political institutions such as treaties and federally-recognised jurisdictions, I do not think that we can confidently argue for the two versions of the solution that I have discussed in this section, which includes working with diverse partners and using international law.

5 Conclusions

Indigenous peoples are among the populations in the world most motivated to address climate change mitigation and adaptation, especially in response to the numerous health concerns posed by certain climate change impacts. Indigenous peoples for many years have had to work with non-indigenous parties at sites of interaction. Many such sites are ones in which indigenous peoples have engendered opportunities for environmental protection despite the non-indigenous parties' continuous lack of understanding of indigenous culture and self-determination. These sites often involve various terms of deliberation, negotiation and diplomacy and involve particular non-indigenous parties with particular expectations. Climate change represents an important factor motivating shifts in the parties and their expectations at various sites of interaction. In terms of indigenous health, there needs to be an active conversation not only about health and climate change impacts, but about the implications of shifting sites of interaction for indigenous peoples' capacities to work at various sites of interaction to achieve the environmental protection needed to support their community members' health.

In the case of sites of interaction that pivot off fixed limit political institutions such as treaty areas or reservation boundaries, it is certainly true that adaptation is going to require greater coordination with non-federal parties, scientists, and the inclusion of UNDRIP and other international standards. Yet indigenous peoples' capacity to lessen health risks and bad health outcomes is rooted in an understanding of indigenous culture and self-determination. There are certainly cases where indigenous peoples have worked effectively in deliberative and diplomatic contexts involving parties with which they previously have not worked. As an overall policy of indigenous climate adaptation, however, there are risks that need to be further discussed because there are no guarantees that indigenous people's culture and self-determination will be respected if non-indigenous parties do not have to honour the political force of treaties or reservation jurisdictions. For some indigenous peoples, changing ecological conditions could motivate a rolling back of certain gains they have made on behalf of being able to achieve political and legal protections that serve their community members' health. Or perhaps climate change represents an opportunity for new collaborations across indigenous and non-indigenous parties, and what we may see is a trend toward better cooperation that may, in the short term, have problems and hiccups, but will eventually be positive for indigenous culture and self-determination. Regardless, I think we need to consider strongly the importance of what we understand by the unprecedented levels of learning that may be required for these parties to come together toward the environmental protection needed to guard indigenous health as indigenous peoples adapt to climate change.

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