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Co-designing Indigenous Land-Recovery Projects from the Ground up in the Americas

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Co-designing Indigenous Land-Recovery Projects from the Ground up in the Americas

Abstract: This article shares Indigenous pedagogical and epistemological insights from two of a series of Indigenous land-based workshops designed to promote Indigenous Nation-to-Nation engagement for the activation of the governance value of Traditional Ecological Knowledge in climate action and socio-ecological restoration. The workshops were designed by the Kainai Ecosystem Protection Association (KEPA, Blackfoot Confederacy) who hosted Kaqchikel Maya researchers from the Mesoamerican Permaculture Institute for inter-cultural storytelling and knowledge exchange and transmission. We suggest that the platform that these workshops created privileged Indigenous knowledge production and transmission while de-centering Western ones, thereby creating an ethical space that promoted Indigenous research sovereignty. By framing this engagement as a form of climate action achieved through treatymaking, the Indigenous participants illustrated how the pathway to socio-ecological restoration is to be achieved through healing relationships with All Our Beings.

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Introduction

As he stood on the ridge of Naapi's Garden, located on the Blood Reserve in the traditional territory of the Blackfoot Confederacy in present-day southern Alberta, Api'soomaahka (William Singer III, KEPA Knowledge Holder and the founder of Naapi's Garden and the associated Katoyiss Seed Bank) explained to the gathered audience that the Garden is a 'planted wild garden.' When seen from high above in the sky, it appears as a person. This is how it appears in his dreams, Api'soomaahka added. 'We come from the stars; we still have that connection. The stories that I tell are the stories I was told. In my family, my dad was the storyteller. From there I started telling stories. That's something I have always enjoyed because the more stories you tell the more connection you have to your environment.' Of the long list of wild plants and native grasses that the project (www.naapisgardenkepa.com) intends to rescue, the prairie turnip (Ma' in Blackfoot, *Psoralea esculenta*,) holds a special place, for it is an important food and medicine to the Niitsitapi (Blackfoot people). The root is rich in fibres, proteins and carbohydrates; it is beneficial for the body, for it maintains brain health, prevents cancer, diabetes. It is a good source of energy. It is connected to the morning star and the sky beings. Then the audience learned that the project was created to further 'the continuing adaptation of the Niitsitapi,' something that requires partnering with research collaborators and allies. Api'soomaahka concluded: 'Naapi's Garden connects us to everything. It's not only a garden; it's a way of life. This work affects loads of people on and off the reserve. To me it's a way of life, not hard labour. All these connections are like my family. I think about them (the plants, the water, soil, wind, etc.) every day.' While he distributed wild plant seeds to the children that were present and asked them to broadcast them all over, he shared with us the project's mission plan:

[1]- today we are experiencing a decline in our native plants, which leads to a decline in community health and every plant we lose will affect our Niitsitapi way of life.

[2]- navigating environmental and social climate change requires looking to our history and stories to take action.

[3]- it's also to prepare our children for the future, to become Niitsitapi horticulturists and scientists, by growing our native plants from seed.

[4]- to utilize Blackfoot ecological knowledge to heal ourselves through the plants and herbs given to us by the creator.

[5]- to create reciprocity through land restoration, research, education and partnership.

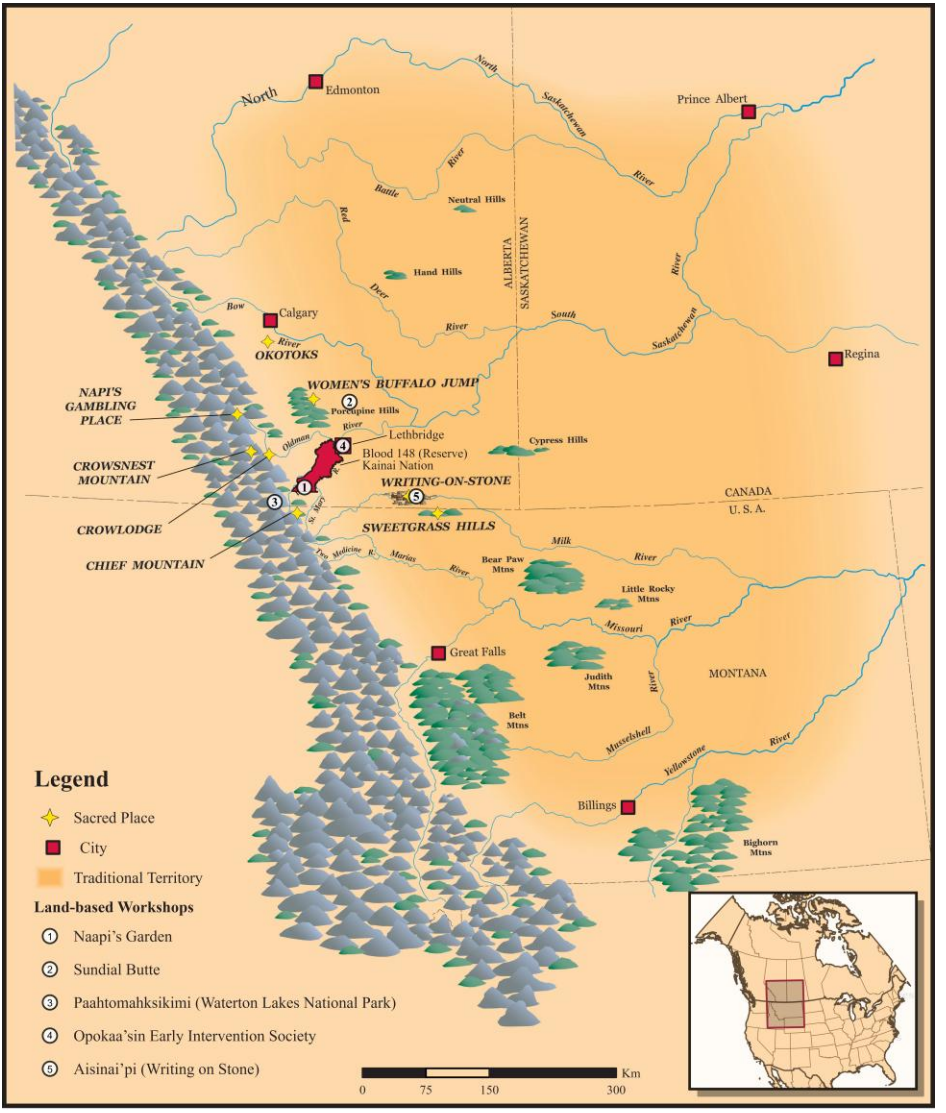
[6]- to assist in and create food security solutions by developing community and family gardens.

Naapi's Garden is the flagship project of the Kainai Ecosystem Protection Association (KEPA). KEPA is an organization of the Kainai Nation of the Blackfoot confederacy dedicated to the protection and health of the environment for future generations, rooted in the Niitsitapi world view. It provides leadership through research, monitoring, resource management and conservation education. The gathering at the Garden was one of five land-based workshops hosted by KEPA in June 2025. As a set, they were entitled *Pommotsiiysinn Sapaatsima'pi* (*Sharing Knowledge in Harmony with All Our Relations*). For these workshops, KEPA Elders, Knowledge Holders, and Blackfoot and other Indigenous undergraduate and graduate students, in collaboration with non-Indigenous postsecondary researchers from Canada and the UK, invited two Kaqchikel Maya researchers from the Mesoamerican Permaculture Institute (IMAP) of Guatemala, Executive Director Inés Cuj and IMAP's Seed House Coordinator Patrik Mucia Poz, to participate in the collaborative land-based workshops in Blackfoot territory as a pilot engagement to promote the sharing and transmission of Traditional Ecological Knowledge (TEK) (sensu Atalay 2020; Molnár and Babai 2021). IMAP is a grassroots Indigenous organization dedicated to the promotion of food sovereignty, biodiversity management, agroecological education, and the empowerment of small farmers. At Naapi's Garden, Kaqchikel Maya researchers identified convergences among the mission plan of the Garden, that of KEPA more generally, and IMAP's own. They (IMAP) also save seeds and adapt ancestral knowledge to their people's current reality, and for them, too, ancestral stories constitute an epistemological bedrock.

This article is dedicated to the pedagogies of Indigenous Nation-to-Nation engagement through a discussion of two of the five workshops hosted by KEPA for the formation of a transnational partnership and the sharing of Traditional Ecological Knowledge. These are the ones that took place at Naapi's Garden and at Ákáómma'pisi (Sundial Butte), led by Knowledge Holder Api'soomaahka (William Singer III) and Elder Ninna Piiksii (Mike Bruised Head), Director of Naapi's Garden and Chair of KEPA, respectively, and co-authors of this article. Each workshop was a full-day of land-based activities, and we have decided to focus our attention on these two specific workshops because of the central roles our co-authors played in the design and delivery of them. We focus our attention specifically on the pedagogical and collaborative aspect of the workshops, which involved not only the KEPA and IMAP Knowledge Holders, but also one Blackfoot MA student, three Blackfoot undergraduate students, and one student from the Upper Cayuga Nation. We argue that this land-based approach to partnership building and knowledge transmission created epistemological openings and a fundamental but less common

"ethical space" for engagement and collaboration (Ermine 2007). This enabled a Nation-to-Nation dialogue, evoking Emilio del Valle Escalante's notion of "transhemisferic indigeneity" (del Valle Escalante 2018), where Indigenous participants were in a position to share and learn about socio-ecological restoration from the perspective of overlapping yet distinct Indigenous notions of living well/a good life, captured in the concepts of *Iksookapi* (Blackfoot) and *Utz k'aslemal* (Kaqchiquel Maya). Each of these, in its unique way, expresses an expansive notion of living in harmony with All Our Relations.

Four of the five workshops took place at sites of Blackfoot spiritual and/or biocultural significance spread across Kitáwahsinnoon (the ancestral Niitsitapi territory), which encompasses all of southern Alberta and part of western Saskatchewan in Canada, and north-western Montana in the United States.



Courtesy of the The Niitsitapiisini/Blackfoot Gallery Committee and Glenbow Museum. Doreen Blackweasel, Tom Blackweasel, Andy Black Water, Jenny Bruised Head, Clifford Crane Bear, Louise Crop Eared Wolf, Charlie Crow Chief, Rosie Day Rider, Carrie First Rider, Earl Old Person, Allan Pard, Jerry Potts, Pat Provost, Pete Standing Alone, Jim Swag, Donna Weaselchild, Frank Weasel Head, Clarence Wolfleg, and Herman Yellow Old Woman. Image adapted by Nick Yarmey, Prentice Institute for Global Population and Economy, University of Lethbridge.

Map 1. Blackfoot Territory, highlighting the sites of the 2025 land-based workshops.

One workshop took place at Opokaa'sin Early Intervention Society (a Blackfoot preschool and kindergarten located in the City of Lethbridge)[8]. The other three took the participants to Aisinai'pi (Writing-on-Stone Provincial Park, a

[8] https://www.opokaasin.org/

UNESCO World Heritage Site)[9], Ákáómma'pisi (Sundial Butte, an ancient rock cairn), and Paahtomahksikimi (Waterton Lakes National Park)[10]. Of all the workshop locations, only Naapi's Garden is located on the Blood Reserve (Kainai Nation); the rest are spread at distances of an hour or more by car from the Reserve and are understood to be part of an interconnected landscape within Kitáwahsinnoon. The large geographical span encompassing the workshop locations, though only a fraction of Kitáwahsinnoon, still captured a fundamental aspect of Niitsitapi relations to the land and identity: that the Niitsitapi are people of the prairies, but also of the mountains and foothills[11]. In the past, they relied on harvesting[12] plants and animals, moving strategically across vast territories and in accordance with treaties and relations held with other sovereign Nations and Beings. Today, pick-up trucks and other means of travel facilitate what remains a well-rooted tradition of movement and interconnectedness across vast spaces, this nurtures a wide web of relations with human and other than human (e.g., spirit) Beings. Driving daily across the different landscapes of Kitáwahsinnoon opened a window for non-Niitsitapi participants into Niitsitapi pedagogy and land relatedness, where movement itself was the pedagogy.

The intercultural storytelling and knowledge sharing experience during the workshops affirmed the Blackfoot tradition of visiting and treatymaking with other Nations, which has an analog in the Kaqchiquel Maya world, and directs attention to the potential of Indigenous Nation-to-Nation collaboration for co-designing land recovery projects in the Americas, and beyond. The Nation-to-Nation engagement, therefore, provided a platform towards advancing the research sovereignty of the two Indigenous organizations and the affirmation of Indigenous Knowledge Systems (IKS), in and of themselves, for research on socio-ecological restoration. This type of Nation-to-Nation ethical space foregrounds Indigenous governance and seeks to address pitfalls common in work involving IKS and TEK, which often treat these knowledge systems either in isolation, or in parallel with Western ways of knowing. This creates a juxtaposition that risks epistemic assimilation of Indigenous ways of knowing by Western ones and tends to homogenize Indigenous experience and Indigenous knowledges as uniform and interchangeable (Sillitoe 2002).

Importantly, a Nation-to-Nation collaboration framework foregrounds: (1) the *governance value* (vs. supplementary value) of IKS and TEK (Whyte 2018); (2) IKS and TEK as processes of knowing (vs. a set of "knowns") (Kohn 2005); (3) the

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[9] https://www.albertaparks.ca/parks/south/writing-on-stone-pp/; https://whc.unesco.org/en/list/1597/

[10] https://parks.canada.ca/pn-np/ab/waterton

[11] https://www.blackfootdigitallibrary.com/digital/collection/bdl/custom/land-acknowledgement

[12] As clarified by Elder Mike Bruised Head, in relation to the inadequacy of the "hunter-gatherer" category.

gender dimensions of IKS and TEK (da Costa et al. 2021); (4) IKS and TEK as the unique products of localized histories and culturally embedded land praxis (vs. idealized generic bodies of "eco-friendly" philosophies) (Wilson 2010); and (5) the dynamic and evolving nature of IKS and TEK (vs. a vision that freezes them as timeless epistemologies).

Land recovery from the ground up in the Americas

The Kainai Ecosystem Protection Association (KEPA) was formed in 2011 at the suggestion of the late-Kainai Elder, Charlie Crow Shoe. Elder Charlie encouraged the next generation of Elders and Knowledge Holders, Elder Ninna Piiksii among them, to create an organization, rooted in Blackfoot TEK, that would work on conservation efforts on and around the Kainai (Blood) Reserve. Since then, KEPA has engaged in a wide range of initiatives, including river bottom tree planting programs to repopulate diminishing willow and poplar groves, contributing to the work of the buffalo rematriation projects of the Blackfoot Confederacy, collaborating with the Oldman Watershed Council on a range of environmental monitoring programs in the watershed (which encompasses all of the Kainai and Piikani Reserves and much of Kitáwahsinnoon in southern Alberta), and partnering with Parks Canada at Waterton Lakes National Park on an Indigenous monitoring program. KEPA has also organized an annual summit since its inception, a vibrant venue for Knowledge Holders, environmental leaders, researchers, and partners of the organization to share knowledge and perspectives on ecosystem protection, analyze environmental threats and challenges, and report on advances in research and conservation efforts. This draws from KEPA's networks, as its main members, Ninna Piiksii and Api'soomaahka, are active on a number of conservation boards and advisory circles, including with the Waterton Biosphere Reserve, the Oldman Watershed Council, the Milk River Watershed Council, and Parks Canada, among others.

IMAP, the Mesoamerican Permaculture Institute, was founded in San Lucas Tolimán (Guatemala) in 2000 to serve as a Kaqchiquel Maya center for the promotion of environmental education and permaculture training, locally, nationally and internationally. Like KEPA, it is an Indigenous organization, staffed entirely by Kaqchikel Maya researchers, whose mandate is, as discussed by IMAP's Executive Director, Inés Cuj,

> …to revitalize ancestral knowledge systems and support the creation of Indigenous life plans through land-based learning, agroecology, and socio-ecological restoration.

The work of IMAP and KEPA is grounded in the principle that their ancestral knowledge systems contain the solutions to problems caused by ecological degradation, biodiversity loss, and the climate crisis—all made worse by the

expansion of agroindustry and monoculture farming. For Inés Cuj, these compounding crises make the work of restoring and sharing ancestral knowledge that much more pressing. As on the Blood Reserve, where agro-industrial activity has displaced traditional land use and the capacity to rely on the land for maintaining traditional foodways, the promotion of ancestral land use practices is critical to food sovereignty and cultural continuity.

Hence, despite the distinctive histories and contours of settler colonialism as experienced by the Kaqchikel Maya and Niitsitapi peoples, they confront structurally similar pressures stemming from territorial loss and fragmentation, extractive industries, economic marginalization, and structural racism, among other challenges. Settler colonialism in each context radically transformed land-use practices through the introduction of cattle ranching and the imposition of distinctively non-Indigenous agriculture and land tenure regimes (Neher et al. 2021; Harring 2015; MacDonald 1984), and mining activities on or adjacent to their lands has further accelerated the degradation of land and watersheds (Mestanza-Ramón et al. 2022; Way 2016; Rehu 2012).

In the case of Canada, specifically, the establishment of the Reserve System forced First Nations onto reduced territorial bases and under economic regulation by Indian Agents—delegated by the Canadian government to administer affairs within reserves. In the specific case of the Blackfoot Confederacy, and in the context of colonial violence and the deliberate colonial strategy of undermining Indigenous food security, Blackfoot Chief Crowfoot made treaty with the Crown in 1877, resulting in the Blackfoot Treaty (Treaty 7). In Kitáwahsinnoon, after the extermination of the buffalo and near eradication of ancestral land practices, the Niitsitapi were first forced to adopt agriculture, and later cattle ranching, while not given a chance to gain economic self-sufficiency through either (Gonzalez 2025). Besides the restriction of mobility imposed by the reserve system and mechanisms such as the pass system, which required Indigenous peoples to receive permission from Indian Agents to transit outside of reserve land, the concurrent suppression of traditional land tending practices must be recognized as contributing factors in the decline of medicinal plants and native food sources across Kitáwahsinnoon (on and off reserve). Opportunities for the transmission of land-based knowledge were also severed. As Ninna Piiksii recounts, settler practices of gardening and agriculture were part of the curriculum imposed upon Blackfoot children at residential schools[13]. Today, almost the entirety of the arable land on the Blood Reserve is leased to off-Reserve producers for commercial agriculture production and cattle ranching. This almost complete transformation of the Indigenous prairie landscape has led to the

[13] Government schools for the assimilation and genocide of Indigenous peoples throughout Canada.

steep decline in native plants and has limited the capacity of the Blackfoot to engage in traditional land-based practices, with consequences for Blackfoot traditional knowledge systems and the inter-generational transfer of such knowledge to the younger generations.

In the case of Guatemala, following the end of the civil war in 1996, a war that included a genocidal campaign against the Maya population, the transition to neoliberal democracy has continued a long-term process (initiated by Spanish colonization) of the consolidation of land into large, landed estates for monoculture cash cropping (Copeland 2019). As Castro and Lavinas Picq (2017) argue, the experience of land dispossession for the Mayan peoples of Guatemala is not episodic, but rather a systemic feature of colonial and post-colonial governance in Guatemala. The fragmentation of the land base was accelerated by the internal displacement of Maya populations due to the conflict, but the return to democracy has not halted or reversed those trends. Rather, neoliberal policies have exacerbated the process of smallholder land loss—an ongoing "slow displacement"—due to economic policies and land governance regimes that favour large-scale producers and extractive economies over those of small-scale peasant producers (Carte et al. 2019). The long-term consequences of territorial loss and economic marginalization have threatened the food security and sovereignty of the Kaqchikel Maya while undermining their traditional milpa system of agriculture. For IMAP, revitalizing and adapting their milpa polycultural system—and its associated benefits of environmental sustainability and biodiversity management (Benry et al. 2024)—to the realities of their reduced land base is central to its organizational mandate and its movement towards restoring Kaqchikel food sovereignty.

Furthermore, in both Canada and Guatemala, as in many other parts of the world (e.g., Meskell 2012), territorial loss and fragmentation have been exacerbated by the creation of parks and protected areas in ancestral territories, and these parklands have historically been off-limits to Indigenous and other land-based peoples (Kelly 2011). This fortress conservation model exemplifies what Le Billon (2021) refers to as "crisis conservation," as it seeks to mitigate the environmental catastrophe caused by extractive industries through cordoning off "natural" spaces as protected areas. This model also exemplifies trajectories of dispossession affecting land-based peoples, crippled, by virtue of reduced land bases and severed relations to the land, in their capacity to enact Indigenous land use and management practices (Ojeda 2012; Kelly 2011). There is growing evidence that the erosion of Indigenous land management has contributed to ecosystem degradation in protected areas (Eisenberg et al. 2019). Further, from an Indigenous perspective, the severing of relationships with the land amounts to spiritual harm through forced rescinding of responsibilities to all Beings.

The work of KEPA and IMAP, both individually and collectively, represents a response to the ongoing effects of settler colonialism and a context in which they

are re-envisioning Indigenous commons as a framework through which to accomplish the work of Indigenous-led socio-ecological restoration. This is an imperative, as it occurs in the context of deepening ecological degradation, one of the ongoing manifestations of settler colonialism, and the concomitant acceleration of climate change, experienced most directly by Indigenous and other land-based peoples in the form of erratic and extreme weather patterns that impact all forms of life. Together, the work of these organizations points to the need to affirm IKS and TEK as epistemic pillars for understanding and confronting climate change. Central to their work of socio-ecological restoration is the reweaving of the web of relations, severed by colonization, among all Beings. The work of relationship renewal is therefore also a project of decolonization—a project of "chasing colonization back," as Ninna Piiksii calls it (Bruised Head et al. 2024).

"Chasing colonization back" through land-based pedagogy: Naapi's Garden and Sundial Butte

Naapi, the Old Man, made the earth and its beings. The many creation stories involving him mark the boundaries of ancestral land, its sacred places, as well as the responsibilities given to people "to strengthen life" (Bastien 2004:90).

A growing body of literature points to the contributions of land-based learning in strengthening of Indigenous knowledge systems and Traditional Ecological Knowledge, serving as well as a pathway to decolonizing research (Wildcat et al., 2014; Bowra et al. 2020). Land-based activities create an Indigenous space for teaching that decenters Western epistemological frameworks and helps to create a novel space for knowledge production and transmission (Bartmes and Shukla 2020). The pedagogy employed at each workshop was grounded in a Niitsitapi tradition of knowledge transmission anchored in the inter-generational sharing of stories, the movement across the land, and the nurturing of relations while on the land. Each workshop also commenced with a prayer conducted by a Blackfoot Elder to provide guidance for the activities of the day and help to facilitate the creation of the intercultural Indigenous ethical space for the exchange of knowledge. Those in attendance were not only the researchers from the two Indigenous organizations and the postsecondary students and faculty who were involved in the co-organization of the series of workshops, but also an inter-generational mix of kin of the KEPA researchers and other KEPA collaborators. The mix of people present for each workshop varied based on the web of relationships radiating out from those who organized it. Knowledge production and sharing, in this context, was a gift exchange made possible through the building and strengthening of those relations.

Webs of relationships for the transmission of knowledge, however, expand beyond humans, as relationship building involves *All Our Relations*. The strengthening

of positive relations among people, animals, plants, soil, water, air who are all bound together in a tapestry of mutual responsibility was a theme repeated at Naapi's Garden and Sundial Butte and throughout the week of workshops, and many of the activities undertaken those days were oriented around affirming those social relations, writ large.

Naapi's Garden

At Naapi's Garden the workshop began with a prayer by Elder Ninna Piiskii, followed by the story of Sky Woman, shared by Api'soomaahka. This story encapsulates his work on prairie restoration at Naapi's Garden, which is grounded in relationships he has built with different plants through knowledge he has been gifted in the form of stories told to him by Elders. He prefaced the story with a central challenge the Garden is confronting: how to address the rapid decline in prairie turnips across Kitáwahsinnoon. While prairie turnips used to be widely available and a common Niitsitapi food source, they are quickly becoming so scarce that even Api'soomaahka, who knows all the common places where the turnips are usually found, is finding it difficult to locate them. Compounding the problem of restoration, the prairie turnip is a slow-growing plant, taking about seven years to reach maturity. Yet, as Api'soomaahka pointed out, to be able to propagate and care for the turnip, or any other native prairie plant, one must have knowledge of the stories associated with that plant. It was only after he, himself, had been gifted the story of Sky Woman that he was then able to begin the hard work of turnip restoration at the Garden. And so, he shared the story of Sky Woman, mother of the prairie turnip, a gift of the knowledge contained within that story to all in attendance.

At Naapi's Garden, Api'soomaahka chose to stop leasing his land to off-Reserve agrobusinesses, nurturing the return of Indigenous plants and animals. As the animals return—foxes, weasels, deer, gophers, bees, and numerous bird species—he seeks to create a relationship with each. Critical to the process of inviting them back and reconstituting relationships with them, are the ancestral stories attached to each, which contain the knowledge through which those relationships may be cultivated. The Garden is returning native foods to the prairie, transforming it into a space of enhanced biodiversity that interrupts the monotony of the agro-industrial monoculture landscape that surroumds it. Api'soomaahka spoke of the importance of land as teacher as he explained how learners must be receptive to receiving the teachings of different animals and plants through careful observation and communication with them (Michell et al. 2021). What is learned from the land is then shared to others through stories, which weave together personal experiences with stories that have, in turn, been gifted by Elders and Knowledge Holders (Datta et al. 2025). Api'soomaahka shared stories of the different plants found in the garden. While walking in the Garden, he introduced participants to each plant and invited all present to build their own unique relationships to them. This engagement with the

plants became a vehicle for inter-cultural engagement and relationship building, as attendants gathered spontaneously in small groups around patches of vegetation to touch, smell and talk about their own experience with these or similar plants.

Api'soomaahka's pedagogy is also inter-generational and artistic, as he dedicates significant time to teaching at the Opokaa'sin preschool Forest School. He takes children to the river bottom, adjacent to the City of Lethbridge where the school is located, weekly and introduces them to a diversity of prairie plants, animals, insects, and to their properties and stories, while encouraging each child to interact with plants and animals and forge their own personal connection with them. He introduces them to Blackfoot sign language, noting how this is the way in which the ancestors communicated and made treaties with distant sovereign nations. Groups of children also do field trips to Naapi's Garden. Api'soomaahka, himself, has taken on mystical dimensions for these children. He always carries with him a black metal briefcase box in which he carries seeds, plants, and dried native fruits to the Forest School and on fieldtrips. He is so closely associated with that box that the preschool children assume he must live in it, emerging from it to share his teachings with them. The children in attendance at the workshop in Naapi's Garden were given coloring books illustrated by Api'soomaahka with the names of plants and animals in Blackfoot, insights about their characteristics and behaviors. One of those books, for example, contains the story of *namoo* (bee), and includes notes on how to relate to *namoo* and the importance of bees for the pollination of plants that are essential Niitsitapi foods and medicines.

From IMAP's perspective, Patrik Mucia Poz (IMAP's Seed House Coordinator) understood this pedagogy to be more than technical or factual training, just like when they teach their younger generations about seeds and agroecology through the milpa system, rooted in Kaqchikel cosmology; it is "a web of knowledge embedded in cultivation"—where cultivation and caring for seeds encapsulates the whole of a philosophy of relatedness. IMAP's Seed House, he explained, is not simply a place for storing seeds, but rather a space of teaching and learning about the diversity of life throughout the Kaqchikel territory and the stories that give significance to its diverse places, including where the seeds are gathered from. This is an instance of knowledge transfer from the natural world, where the pedagogy also revolves around careful observation of and interaction with nature and is oriented around attempting to apply its wisdom in human activities. This includes being attuned to natural rhythms and their expression in the Maya calendar and Kaqchikel cosmology to help plan and synchronize agroecological practices. The practice of socio-ecological restoration, then, is cosmological, ontological, technological and practical all at once, as their pedagogical approach prioritizes "…the fine tune[d]…attention of learners to the animation and coherence of the Mayan landscape" (Rival 2023: 564).

Sundial Butte

Sundial Butte, a rock cairn of spiritual significance for the Niitsitapi, is visited to leave offerings and establish spiritual ties to the land. It is located on a hilltop that overlooks vast expanses of ancestral territory. The workshop there was singularly about forging such connections. On this day, Ninna Piiksii led workshop participants from the parking area to the top of the hill after sharing thoughts about land-based pedagogy as a unique, incommensurable opportunity to invite a learning journey that has spiritual and moral dimensions beyond the "content" being learned. He noted that "books have been written about land-based pedagogy"—highlighting the irony of transposing this pedagogy onto media other than the land itself—while also reiterating the importance of the use of the Blackfoot language as a way of thinking and teaching. As a gifted orator, he puts this philosophy into practice in all his teachings, which seamlessly weave back and forth from Blackfoot to English, encouraging all, regardless of their fluency, to listen and learn in Blackfoot (an endangered language) while also providing an access point for non-Blackfoot speakers, Indigenous and settler alike, through his simultaneous translation. In 2022, he became the first doctoral candidate in the history of the University of Lethbridge to defend his doctoral dissertation in the Blackfoot language, a choice he made not only to declare the belonging of Blackfoot inside the walls of the University, but also to point to how it was impossible to fully encode and express Blackfoot knowledge in a foreign language. After the introduction to the day, he led the group up the hill and instructed all to sit in a semi-circle around the cairn, where he shared stories and conducted a pipe ceremony. The ceremony was intended to create and strengthen ties among participants, but also, importantly, to create a connection to that sacred place. When the ceremony was complete and all workshop participants were invited to greet one-another, they were then asked to each find a rock on the slopes of the hill to sit and reflect, to permit the land to be the teacher and contemplate what each had learned. Ninna Piiksii then asked participants to return and reflect on what each had learned. The stories shared, the relations formed, and the learning acquired were now theirs, and a new journey would begin for each, who had been gifted their own story that was now theirs to share. Pedagogy then turned to the self and the responsibility of continuing to learn and of reciprocally transmitting to others what had been learned.

IMAP members and other project collaborators still talk about the spiritual power of the site and about the pipe ceremony as the foundational moment for the affirmation of relationships upon which further collaboration could be built. Through the ceremony, an alliance was created that permits the sharing of knowledge in Indigenous ways. The ceremony, in this way, was the cornerstone of the research methodology.

Restoring Relationships for Climate Change Action

Driving back and forth from Lethbridge and the Blood Reserve to workshop locations, IMAP researchers, Inés Cuj and Patrik Mucia Poz, were astonished to see the seemingly never-ending expanses of arable land that had been converted into monocultures of wheat and canola, punctuated by the periodic cattle feed lot. They contrasted this over-abundance of arable land with their experiences back home, near the southeast shores of Lake Atitlán, where land insufficiency poses a significant challenge to their agroecological project. One of the central challenges for IMAP is to convince local farmers that subsistence agriculture is still possible on a severely circumscribed land-base. The permaculture training IMAP provides is designed to support—not replace—the traditional milpa system, while demonstrating the possibility of achieving food security and sovereignty, even on reduced plots (Fonteyne et al. 2023). Yet while land on the Blood Reserve is abundant (Blood Indian Reserve 148 is the largest in Canada, with an extension of over 1,000 Km^2), Mike Bruised Head estimates that over 60%[14] of it is leased to the agroindustry, a pattern of land use with roots in the early days of settler colonialism and the one that most profoundly affects the ability to return land to traditional use. For both KEPA and IMAP, the consequences of these unfavorable land use frameworks of the present are exacerbated by climate change, a situation that most urgently requires a restoration of the proper relations of respect, reciprocity and responsibility to the land.

Standard research on climate change adaptation and mitigation in the global North tends to understand the natural world through the lens of resources (Mawdsley et al. 2009). Continuing to treat the natural world as a set of resources to be exploited, managed, and conserved side-steps more fundamental questions about the kinds of relationships human beings are formulating with the natural world (Wilson and Inkster 2018). Prominent in scientific models of climate change mitigation are approaches that continue the atomization, commodification and measurement of elements of the natural world, be it through carbon pricing, carbon capture and storage, or collection of quantitative data on ecological stressors. Proposed responses to climate change from this perspective emphasize technological innovation to offset or neutralize effects, such as enhancing agricultural efficiencies, building sea walls, or creating enhanced waste management systems (Wang et al. 2023). These approaches tend to confront symptoms of climate change without addressing what KEPA and IMAP researchers understand to be the fundamental problem and cause of climate change, which is the breakdown of relations with all Beings.

Through a different lens from that of mainstream climate research, Kyle Whyte (2017) argues that climate change is the accumulation of effects brought on

[14] The official figure is not provided to the Reserve.

by colonization and capitalist expansion, both of which fundamentally reshaped relationships between people and nature and created the conditions for the acceleration of extractivism in pursuit of economic gain. The ontologically informed economic models stimulated by settler colonialism radically transformed land use led to the fragmentation and loss of Indigenous lands and fundamentally disrupted relationships between Indigenous peoples and their ancestral territories. Climate change, then, makes colonial injustices and the breakdown of relationships visible (Reibold 2022). These connections are not lost on the IMAP and KEPA researchers. As Patrik Mucia suggested, "We have destroyed more than fifty percent of the biodiversity on the planet. All of this out of a desire to live life at a faster pace and always oriented toward the goal of generating profits. And so, we have lost the connection to nature." For Inés Cuj, the rupture of harmonious relationships to the land is behind climate breakdown and the negative health consequences that accompany it. Cuj elaborated that, "the strange illnesses afflicting people are consequenes of the damage we have done to the planet. We have to return to our ancestral practices of respecting nature and the ecosystem and pass these practices down to our children." While the use of toxic agrochemicals may be the proximate cause for ecosystems breakdown and the illnesses she sees affecting members of her communities, behind those proximate causes are the erosion of relationships and the breakdown of reciprocal obligations to the land.

If climate change is a breakdown of the moral framework upholding respectful and reciprocal relations, for IMAP and KEPA researchers climate action is about the restoration of reciprocal ties and obligations. The importance of relationship-building for socio-ecological restoration made workshop activities centrally about the establishment of new or renewed reciprocal relations among workshop participants and the land.

Conclusion: Imagining New Indigenous Commons for Restoration

"They [the colonizers] killed and buried us, but what they did not know is that we, like the buffalo, were seeds, and that we would grow again from the land."

Patrik Mucia Poz (IMAP), June 2025.

The work of KEPA and IMAP challenge standard approaches to ecosystems recovery and climate change adaptation, which tend to situate climate action around mitigating harm while side-stepping the question of the breakdown of reciprocal relations that have led to the climate crisis in the first place. IMAP and KEPA, however, offer a critique of these approaches by foregrounding the restoration of

relations of respect and reciprocity as key to effectively addressing ecosystem degradation—a moral framework for mitigation linked to their resurgence as Indigenous peoples and their decolonization projects (Atwood et al. 2024). The encounter of the researchers from the two organizations built new relations and strengthened existing ones in ways that expanded the reach of each organization while gaining awareness about the shared experiences between them. In this way, it permitted each of their organizations to "jump scales" (Perreault 2003), not necessarily by capturing the attention of climate scientists in the global North, but rather by finding common ground and connection with like-minded Indigenous researchers confronting structurally similar challenges across the Americas. Of note, socioecological restoration is emerging as a robust axis of Indigenous transnationalism (Corntassel et al. 2026), with the significant precedent of the Buffalo Treaty[15] in Kitáwahsinnoon as one such example. This treaty is between Indigenous Nations and the buffalo with signatories across North America and as far-flung as New Zealand, in itself an example of "trans-Indigenous method(ologies) and political organizing outside settler terms of reference" (Crosschild et al. 2021:7).

The emerging collaboration between IMAP and KEPA is founded on the braiding of their diverse Indigenous perspectives and knowledges, a collaborative approach born out of the formation of relationships through their shared land-based encounters. As noted by Indigenous participants in the workshops, the core value of the approach was realized through the depth of perception that emerged as participants engaged in land-based reflection in the company of fellow Indigenous researchers, and the unique quality of a Nation-to-Nation ethical space to share knowledge, interculturally, that is not framed in a contentious (colonial) history.

The work of IMAP and KEPA clearly occurs in front of a backdrop of settler colonialism and its legacies and enduring consequences. This would make it logical to understand their work through the lenses of resistance and decolonization, actively confronting the ongoing legacies of settler colonialism through a reconstitution of Indigenous land management practices. At the same time, their work might be better understood through the logic of survivance (Vizenor 2008), rooted in the "…endurance and vitality of [Indigenous ontologies] despite a protracted history of attempted assimilation, epistemic violence, and cultural genocide…" (Cran et al. 2026). Further, while each organization is focused on the revitalization of Indigenous knowledges and is concerned with restoration of land-based practices rooted in their own cosmologies and ontologies, they do not view their work as exclusively Indigenous. When Ninna Piiksii talks about "chasing colonization back," he is not referencing an exclusively Indigenous social movement. This is true for the researchers from IMAP as well. Instead, each organization

[15] https://www.buffalotreaty.com/; https://www.buffalotreaty.com/treaty

routinely includes Indigenous and non-Indigenous collaborators and participants in their training and research activities, suggesting that the knowledge they possess is something that may be shared with and utilized by all who come in the spirit of cooperation and with the goal of healing strained relationships.

Therefore, climate change solutions from their vantage point involve the restoration of social relations in an expansive sense, open to all, which makes their work an invitation. It is also an invitation for non-Indigenous researchers and activists to support Indigenous-led initiatives for socio-ecological restoration. While the Western scientific community is increasingly united in voicing the urgency of the climate crisis and the need for decisive action to slow, halt and reverse ecological degradation, there is also a growing appetite to explore an alternative governance structure that might allow for greater Indigenous autonomy is designing and directing land management in Indigenous territories (Artelle et al. 2019). Support for the work of KEPA, IMAP and other similar grassroots initiatives through advocacy around Indigenous territorial rights could, in addition to helping "chase colonization back," contribute to a process of upscaling local Indigenous initiatives for broader application in the work of socio-ecological restoration for climate adaptation.

Indigenous visions of planetary health are of relevance to all peoples and all life on earth. The persistence of settler-mediated frameworks, however, warrants work towards Indigenous self-determination in *ecological restoration* such that it may amount to *socioecological transformation* (Tedesco et al. 2023)—the renewal of social and spiritual connections to the land, living in harmony with All Our Relations.

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