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PEER-REVIEWED ARTICLE

Every Mapping Project Needs a Fire Keeper: Lessons From the Kanehsatà:ke Land Defense Mapping Project

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This paper explores the critical yet often overlooked aspect of maintenance in decolonial and Indigenous mapping projects. Indigenous communities across Canada have developed alliances with university researchers to develop mapping projects that communicate their relationships to land to outsiders. However, without ongoing maintenance and care, maps can deteriorate or be repurposed in ways that can be harmful to Indigenous communities. I introduce the "fire keeper" as a person or group of people tasked with maintenance, care, and responsibility for the life cycle of maps incorporating Indigenous data. Using the Kanehsatà:ke Land Defense mapping project *developed with a Kanehsata'kehró:non Land Defender as a case study, I describe how the role of the fire keeper facilitated the adaptation and evolution of the map in response to the Land Defender's changing objectives. Maintaining the* Kanehsatà:ke Land Defense mapping project *became an exploration of options rather than a rush to deliver an output. Based on a series of four semi-structured interviews that I conducted with (1) a campaigner, (2) a digital media strategist, (3) university students, and (4) a Québécois history enthusiast, the Land Defender was able to make strategic decisions about how the* Kanehsatà:ke Land Defense mapping project *should be deployed and which objectives and audiences, if any, would best support the reclamation of Kanehsata'kehró:non lands while also protecting their geospatial and archival intellectual property. The paper concludes by encouraging mapmakers to dedicate more time, energy, and resources to map maintenance than they currently do.*

KEYWORDS: Indigenous mapping; decolonial mapping; maintenance; Indigenous data sovereignty

INTRODUCTION

The "fire keeper" role was developed by my colleagues and I following a series of online mapping projects conducted in collaboration with government, university, and activist partners from 2017 to 2021 (Shahamati et al. 2022). These projects were launched with different goals but share a common thread. Despite being initiated at the partners' request, with a mapping tool (uMap) chosen based on their predefined criteria (Markovsky 2017), none of these partners have since adopted or used the maps. Much like outdated satellites lingering in Earth's orbit after their operational lifespan, these online maps have become part of a growing collection of junk: web maps that no longer function or that provide inaccurate information due to lack of maintenance. We concluded that as mapmakers, we may not have fully recognized or appreciated the maintenance work needed to sustain our creations or the resources needed for their successful implementation (Shahamati et al. 2022). This concern is common in participatory projects with university collaborators, yet it is frequently overlooked and remains unresolved (Krüger et al. 2021).

In this paper, I will argue that map maintenance is an important aspect of decolonial and Indigenous mapping projects specifically. Scholarship on decolonial and Indigenous mapping has emphasized that working with Indigenous communities on mapping projects is a long-term commitment (Louis and Grossman 2009) in which building and sustaining relationships with communities plays an integral part (Rose-Redwood et al. 2020; Lucchesi 2020). Indigenous partners have different levels of resources at their disposal for mapping projects. While some nations have built very sophisticated mapping infrastructures, others working outside of band councils may not have the

time, capacity, or resources to maintain mapping projects and relegate those tasks to non-Indigenous partners (McGurk and Caquard 2020). This paper addresses the second case. How can we, the non-Indigenous partners committed to Indigenous and decolonial mapping, factor in the time, energy, and resources necessary to ensure the mapping projects developed with Indigenous partners stay relevant and useful?

MAINTENANCE IS PART OF THE MAPPING PROCESS

Maintenance tasks are often perceived as less important or less interesting than design work because they are primarily associated with cleaning and preservation rather than innovation. However, Puig de la Bellacasa (2011), Mattern (2018), and Young (2020) argue that maintenance practices should not be understood as static—keeping things as they are—but rather as dynamic processes that demand flexible reactions to unpredictable situations, actions, and actors. Thinking of maintenance as a process, Young (2020, 362) asks us to "consider the life of an artifact not to be punctuated by separate phases of making and using, but rather as a continuous process of growth." Objects evolve through continuous cycles of maintenance, which lead to the creation of new versions. Therefore "maintenance itself can be understood as a form of making" (Young 2020, 365), and those who maintain are actively contributing to an object's ongoing development.

Kitchin and Dodge (2007) have also taken a processual approach to rethink cartography as a mutable practice, where maps are continuously made and remade in response to changing situations. Literature in post-representational cartography (Kitchin and Dodge 2007; Del Casino and Hanna 2015 ; Caquard 2015; Rossetto 2015) has shifted attention towards the map's context of use and production. This perspective highlights the importance of giving equal consideration to the initial decisions that produce a map and the subsequent choices that adapt it to ever-changing conditions. Maps are "mappings" (Kitchin and Dodge 2007), ongoing constructions that evolve through cycles of maintenance.

Indigenous research paradigms, broadly speaking, are inherently processual and relational (Wilson 2008). Thinking of people and things in relation to each other sets the stage for mapping projects to operate under the assumptions of reciprocity, respect, and responsibility. Lucchesi (2020) emphasizes that maintenance in Indigenous mapping projects is not just a technical task but also a relational one. She advises that approaches to map maintenance should be grounded in the protocols of specific territories and answer to the priorities of Indigenous partners. Non-Indigenous cartographers must work closely with Indigenous communities to develop data storage and use plans that are flexible and responsive to the community's evolving needs (Lucchesi 2020; Rose-Redwood et al. 2020). As communities deal with shifting priorities on the ground, their expectations of the map and relationships with the mapmaker evolve as well.

Building on Indigenous explanations of relational ethics (Absolon 2010; Absolon and Willett 2004; Chilisa 2012; Wilson 2008), and feminist theorizations of care (Fisher and Tronto 1990), data feminists argue that maintaining and repairing systems, including databases, is a form of care (D'Ignazio and Klein 2020). María Puig de la Bellacasa (2011, 90) argues that caring for technology "is an everyday labour of maintenance that is also an ethical obligation: we must take care of things in order to remain responsible for their becomings." However, Krüger and colleagues (2021, 11) emphasize that "valuing care also means paying attention to the potential difference between the intended beneficiaries of a technological artifact and those who maintain it." This insight aligns with Murphy's call to "unsettle care" (2015), highlighting that Indigenous communities often do not engage with university researchers on mapping projects as equals. This imbalance frequently leads to maps that are either unsustainable in the long term, poorly maintained, or too complex for practical use (McGurk and Caquard 2020). Maintenance work should not be seen as a heroic act or a "rescue mission" (Murphy 2015) but as an opportunity to understand, support, and sustain practices that are already happening on the ground in communities (D'Ignazio 2024). As Johnson and colleagues (2015, 842) argue, "the sustainability of the tool should be considered dependent on the sustainability of the collaboration" between university and community partners.

INDIGENOUS DATA SOVEREIGNTY

Meaningfully engaging in care work in activist settings means being responsible not only for the data but also for the people, stories, and relationships that the data

represents (D'Ignazio 2024). Mapping projects that handle sensitive data rely on careful maintenance because neglected maps can be repurposed against their creators (Kitchin et al. 2013). For Indigenous land defenders, maintaining geospatial data is particularly critical to prevent it from being exploited by the government and military, who have historically used mapping as a means to gather geographic information for counterinsurgency tactics (Bryan and Wood 2015). Tuck (2009) and Lucchesi (2019, 2022) have strongly criticized the harmful data practices imposed on Indigenous communities by non-Indigenous organizations including government, law enforcement, social services, and academic researchers. Lucchesi (2022) argues that these organizations often appropriate Indigenous data without consent, manipulate it to serve their own agendas, and create narratives that terrorise Indigenous people into submission.

Grounding mapping projects in an Indigenous Data Sovereignty (IDS) framework ensures that Indigenous communities are in authoritative positions to strategically mobilize their data, rather than relying on external parties to make decisions on their behalf (Schultz and Rainie 2014; Briggs et al. 2020; Lucchesi 2020, 2022; Rose-Redwood et al. 2020). IDS was first advanced as the OCAP principles (*ownership*, *control*, *access*, and *possession*) through the efforts of Canadian First Nations communities (Kukutai and Walter 2015). These principles have since been adapted by other Indigenous nations and incorporated into the **United Nations Declaration on the Rights of Indigenous Peoples** (UNDRIP). Within the IDS framework, the CARE principles ensure that data management (access, use, reuse) aligns with the values of *collective benefit*, *authority to control*, *responsibility*, and *ethics* (Carroll et al. 2020).

The IDS and CARE principles are increasingly recognized by geographers as essential for addressing the unique challenges posed by mapping technologies that incorporate Indigenous knowledge (Briggs et al. 2020; Duckham and Ho 2020; Miner 2022; Reid and Sieber 2022). Concerning maintenance specifically, O'Brien and colleagues (2024) suggest that geospatial data repository practices need to be updated by explicitly incorporating CARE principles. This would ensure that repositories not only preserve Indigenous geospatial data for future generations but also make it accessible to the communities it is intended to benefit, both now and in the future (O'Brien et al. 2024). "The challenge," according to Schultz and Rainie (2014, 1) "for tribes is to convert . . . data into a strategic resource. This means making better use of what they already have and shifting to more proactive and strategic collection of new data." Rodriguez-Lonebear (2016) emphasizes the need to train a skilled "data workforce" or "data warriors" within Indigenous communities to create and manage data to align with community priorities or contribute to building the community's capacity for self-managed mapping. O'Brien and colleagues (2024) have recently developed multistep guidelines which detail the repository activities necessary when working with Indigenous people and the ways they connect to specific CARE principles.

THE ROLE OF THE FIRE KEEPER

Based on the literature cited above and my participation in mapping projects with Indigenous partners, I humbly propose that the fire keeper could be a useful role for cartographers to occupy, one that mobilizes IDS principles in mapping work in ways that Indigenous people have repeatedly asked of us (Kukutai and Taylor 2016 ; Carroll et al. 2019; Lucchesi 2020; Carroll et al. 2021). The idea is not to create a whole new concept, but rather to propose a concrete application of CARE principles (Carroll et al. 2020, O'Brien et al. 2024) centred in IDS (Kukutai and Taylor 2016), maintenance (Mattern 2018), and data feminism (D'Ignazio and Klein 2020).

A fire keeper is a person or group of people tasked with maintenance, care, and responsibility for the life cycle of maps incorporating Indigenous data. Designating someone or a group of people as the fire keeper is important for ensuring that Indigenous rights and interests are upheld in relation to the map and the data repository behind it. It is their responsibility "to ensure the longevity of the data in their care, no matter the circumstances, up to and including dissolution of the repository" (O'Brien 2024, 14). This implies (1) identifying types of uses for the map and outreach opportunities with Indigenous partners that promote their well-being and informed decision-making; (2) safeguarding the data on the map to ensure it remains secure and under Indigenous control; (3) ensuring that the accuracy and quality of the data are not compromised over time; (4) assisting in the development of new maps that align with the evolving objectives of Indigenous partners; and (5) sharing skills so that Indigenous partners are empowered to use the maps. By being accountable to the

people, communities, and land, the fire keeper can contribute to improving the relevance and usefulness of their mapping projects for Indigenous partners (Lucchesi 2020).

I come to this conversation as a geographer of European descent having come to Turtle Island (North America) to study and staying nearly a decade as an uninvited guest. During my time in Tiohtià:ke (Montréal), I have been working with a Kanien'kehá:ka (Mohawk) Land Defender from the community of Kanehsatà:ke (hereafter referred to as "the Land Defender") to make maps. This person is affiliated with the traditional governance structures of the Rotinonhsyonni (Haudenosaunee Confederacy). They are guided by principles outlined in the Kayanla' Kówa (Great Law of Peace) rather than the Band Council. In this paper, the Land Defender will not be directly quoted, the pronouns they/them will be used at their request, and the people working with them will not be named, to protect their anonymity.

In the following sections, I reflect on the first mapping project the Land Defender and I undertook together, the *Kanehsatà:ke Land Defense mapping project*. It is important to underscore that this map is a product of direct and initial solicitation by the Land Defender in 2020. Beyond the usual scope of an academic research project, this map was conceived to be a practical resource. I will use the concept of "fire keeper" to focus on a very specific aspect of this work: our attempt to extend responsibility and care in our mapping partnership beyond the data collection and design phase to the post release phase of the *Kanehsatà:ke Land Defense mapping project*, and what can be gained by harnessing these "moments of maintenance" as productive sites to put Indigenous data in Indigenous hands for Indigenous benefit (Kukutai and Taylor 2016). I do not pretend that our process was flawless. But the Land Defender and I have managed to build a relationship that we are happy with, and we continue to work together to this day.

I will start by describing the *Kanehsatà:ke Land Defense mapping project*, including its original objectives and target audience. Then, I will explain how shifting political circumstances in Kanehsatà:ke required a complete overhaul of these initial objectives and audience. I will explain how the role of the fire keeper emerged as a response to assist the Land Defender when they wished to continue the project but did not have the bandwidth to fight on every front at once. Finally, I will reflect on what being the fire keeper meant in the context of the *Kanehsatà:ke Land Defense mapping project* and what broader insights might be gained on map maintenance and its importance in Indigenous mapping projects specifically.

1. CONTEXT: HOW THE KANEHSATÀ:KE LAND DEFENSE MAPPING PROJECT CAME TO BE

During the fall of 2020, Kanehsata'kehró:non (Indigenous people from Kanehsatà:ke) land defenders faced numerous challenges, including unwanted archaeological digs, ongoing housing development, deforestation by their own community members, and a bold attempt by the surrounding municipality of Oka to seize control of their sacred pine forest. The initial goal was to create a map that could be used in a targeted direct-action campaign in Kanehsatà:ke and Oka to show that the challenges faced by the Kanehsata'kehró:non were not isolated incidents but were systemic, stemming from a long history of colonization that has impacted their lands and lives since the 1700s. The fight against land dispossession predates both the 2020 events and the well-known 1990 siege of Kanehsatà:ke, also called the Oka crisis. Building on Kanehsata'kehró:non oral history and archival evidence (Gabriel-Doxtater and Van den Hende 1995), the map would attribute responsibility for land dispossession to the state and the Roman Catholic Church (specifically the Sulpicians priests), who broke the Two-Dog Wampum treaty and divided up the 540km^2 they were supposed to hold in "trust" for the Kanehsata'kehró:non into 1,830 individual parcels, which were gradually allocated to European settlers over a span of two centuries.

Today, less than 2% of the original land remains for the Kanehsata'kehró:non (Figure 1). The initial objective of the *Kanehsatà:ke Land Defense mapping project* was to map this massive land theft, parcel by parcel, using the government's and church's own archives. The map would be used to liaise with residents of Oka and open them to the perspectives of Kanehsata'kehró:non land defenders. Just because the settlers who arrived in the seventeenth and eighteenth centuries failed to negotiate coexistence with Indigenous people did not mean that such a path couldn't be explored today.

Figure 1. In grey, the 540 km² of land granted by the King of France in 1735 to the Sulpician priests to hold in trust for the Kanehsata'kehró:non. In red, the 2% of that land left to the Kanehsata'kehró:non.

II. MAPPING COLONIAL ARCHIVES TO SEEK JUSTICE IN THE PRESENT

When the Québec Land Registry and the National Archives of Canada started digitizing the Sulpician priests' cadasters, registries, and land patents for reuse, they probably weren't thinking about it through the lens of Indigenous reuse. Information linked to the dispossession of land carries significant insights into histories of displacement, yet it is often stored in state repositories in formats that are not easily accessible to Indigenous communities (Adberg et al. 2022; Shep et al. 2021). The Québec Land Registry, for instance, was primarily designed to locate single patents within it. For researchers or community members, looking for evidence of fraudulent land deals within this system can feel like searching for needles in an archival haystack. The physical separation of community members from documents relevant to them contributes to the erasure of Kanehsata'kehró:non cultural knowledge, a trend the *Kanehsatà:ke Land Defense mapping project* aims to counter.

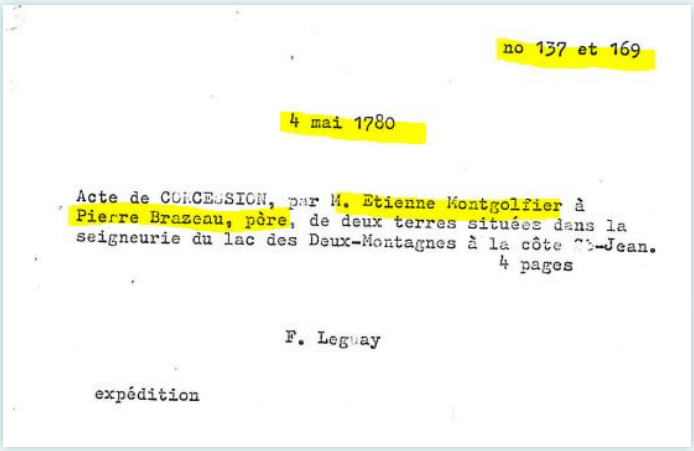
By repatriating ecclesiastical land use records and mapping the archival geodatabase tracking every property transaction between the Sulpician priests and settlers for nearly 200 years (1780 to 1960), the *Kanehsatà:ke Land Defense mapping project* sought to put these records back in Kanehsata'kehró:non hands and draw attention to the incremental expansion of colonial settlement, what land dispossession actually looks like over centuries. While cadastral mapping has been critiqued as a tool of colonial surveillance and control, I flipped the traditional power dynamic by mapping where settlers live and how they acquired

land. As Bryan and Wood (2015) explain, non-Indigenous researchers working on decolonial mapping projects do not have to focus on Indigenous geographies, per se. Instead, they might be more useful exposing the violations in their own institutions instead of waiting for Indigenous peoples or organizations to do the work for them.

An archival geodatabase was created to see who acquired each parcel, when, and under what legal authorities—but also who the land came from and how it came into a settler family's possession. To make the data more accessible, the geodatabase was also converted into a spreadsheet, enabling the Land Defender to use the information without needing GIS software. In addition, a website combining text, animations, and a dynamic map was developed under the supervision of the Land Defender to serve as an interface for outsiders, providing access to the specific parts of the database that the Land Defender chose to share. Although the data repository is private, the Land Defender lacks the resources to host the website on their own server. As a temporary solution, the *Kanehsatà:ke Land Defense mapping project* is currently hosted on a Concordia University server to ensure that it remains a reliable and functional tool for the Kanehsata'kehró:non Land Defender while I still have an institutional connection with the university. Once this arrangement ends, the question of where to host the dataset will need to be addressed, with several possible options that depend on the specific needs of the Land Defender and my own professional situation.

Due to the richness and intricacy of the gathered data, the *Kanehsatà:ke Land Defense mapping project* has three different levels of data curation. To illustrate how this works in practice, we are going to follow the trajectory of a single lot as it surfaces in different visualizations throughout the website.

A tract of land once freely accessible to the Kanehsata'kehró:non was first parcelled on May 4th, 1780. It was attributed the number 137 and granted to Pierre Brazeau by a Sulpician priest called Etienne Montgolfier. Lot 137 sits on the banks of "la petite riviere" in Saint-Benoît, part of the present-day municipality of Mirabel. It first appears as an animation on the website which links the land patent to its specific lot on the cadaster completed in 1798 for the Sulpicians by Louis Guy, then general surveyor (Figure 2).


no 137 et 169

4 mai 1780

Acte de CONCESSION, par M. Etienne Montgolfier à Pierre Brazeau, père, de deux terres situées dans la seigneurie du lac des Deux-Montagnes à la côte St-Jean.
4 pages

F. Leguay

expédition

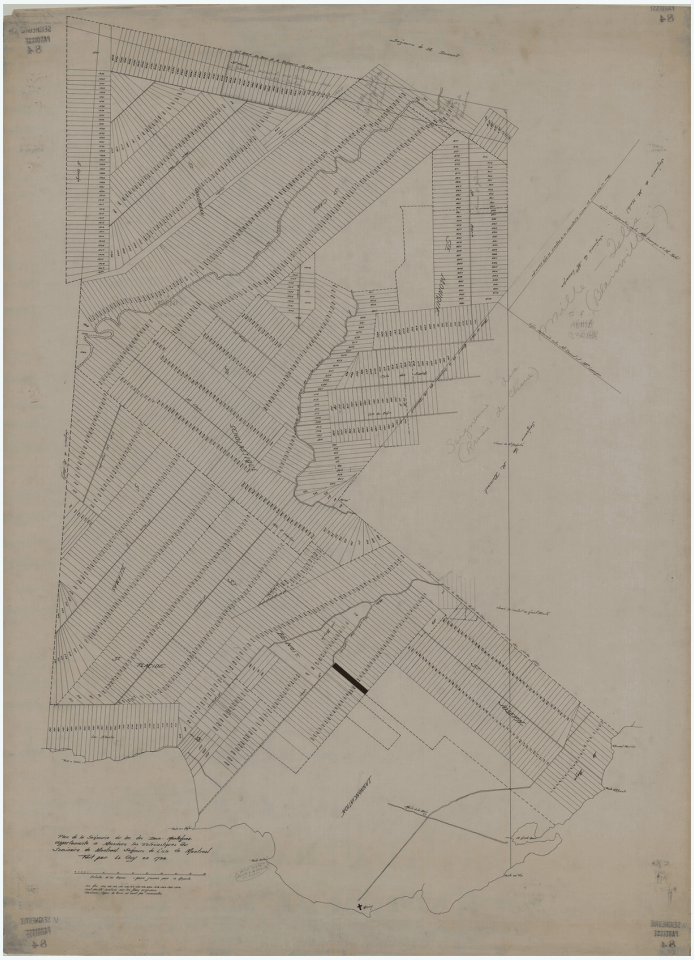


Figure 2. On the website, users can toggle between the Land Patent View (top) and the Cadaster View (bottom).

Pierre Brazeau was amongst the first European settlers to be granted land by the Sulpicians in the Seigneurie du Lac-des-Deux-Montagnes. By tracking the rhythm of dispossession (how fast lots were granted to settlers), we learn that within the first decade of settlement, 21,000 acres of

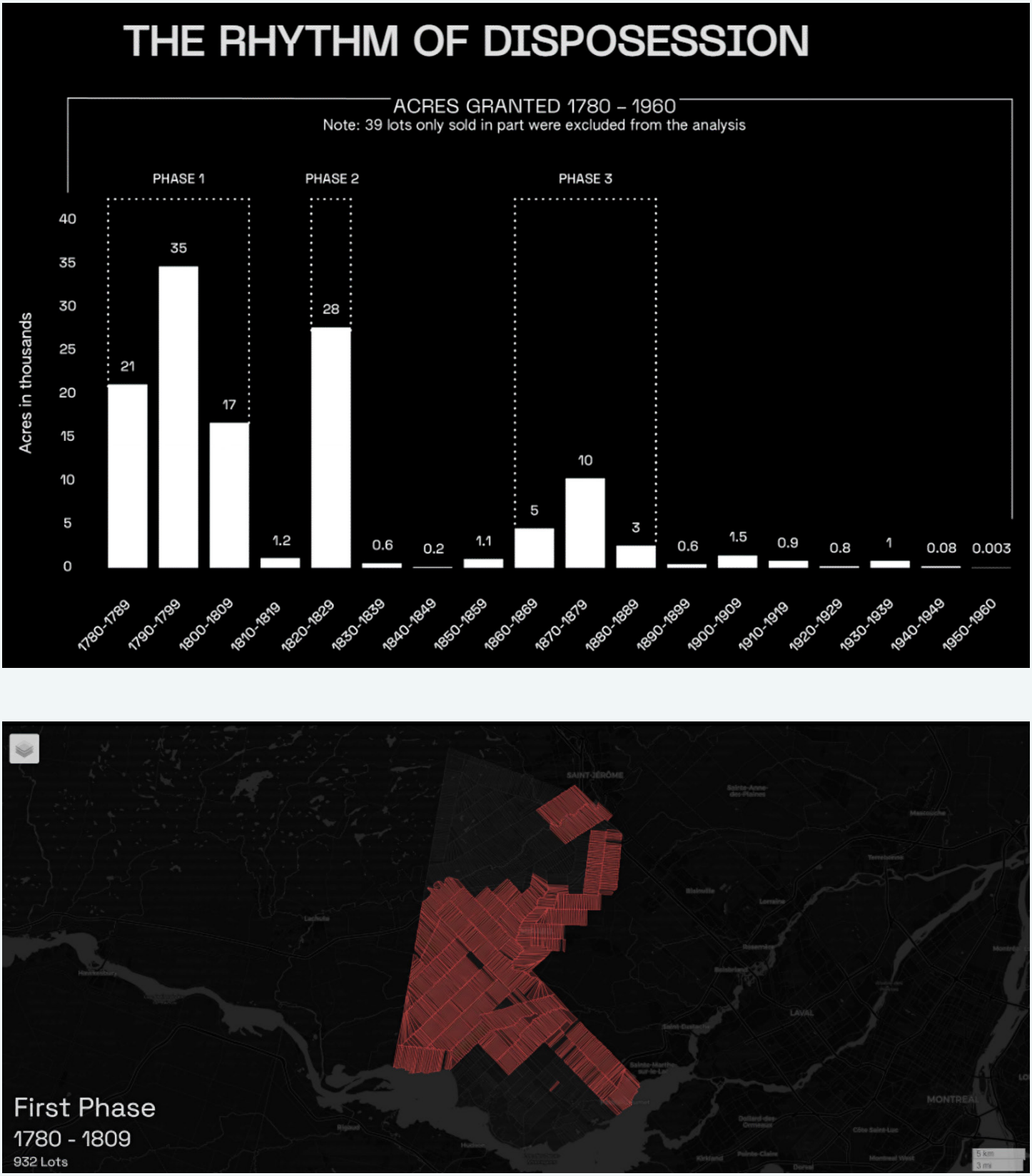


Figure 3. Archival data on the website is communicated in multiple ways. By looking at the graph we can see that Pierre Brazeau was granted land within the first wave of settlement, in which the Sulpicians granted a total of 73,000 acres to settlers in only 30 years. The map allows users to visualize what 73,000 acres look like on the territory.

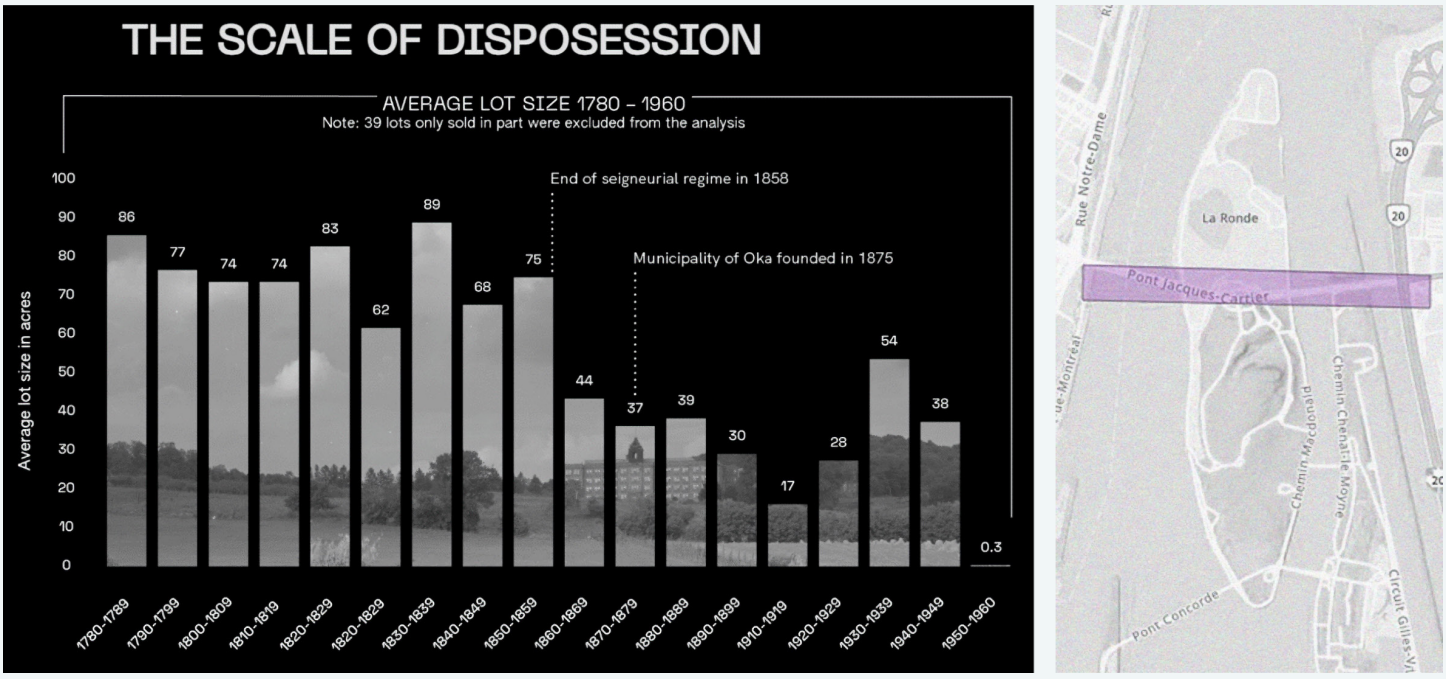


Figure 4. By superimposing lot 137 on the Jacques Cartier bridge in Montréal, we are able to grasp the scope of dispossession; how much land was attributed to just one man like Pierre Brazeau. The graph contextualizes the sizes of the lots within the seigneurial regime. By using both visualizations we can better understand how the Seigneurie rapidly spread across the land.

land were taken from the Kanehsata'kehró:non (Figure 3). Lot 137 was among them. We can also see that land dispossession did not occur uniformly over time. Instead, settlement happened in sharp bursts, each lasting approximately between 10 and 30 years (Denieul-Pinsky 2024). These bursts can be identified across three distinct phases in the historical record (Figure 3).

The website links each phase of settlement to a map that allows users to zoom in to a subset of the data and investigate each of the parcels. Pop ups are linked to each parcel on the map, providing comprehensive details on its acquisition history, and the name of the priest complicit in the process. Tying the information on this map with the information we have of this period, we learn that Pierre Brazeau, like most settlers in the Seigneurie from 1780 to 1809, was a French farmer. Lot 137 is in an area called "la mouvance," the fertile regions around côte St-Joseph, côte de la Baie, and les Éboulis, extending northwards (Dessureault 1979).

Although the size of land parcels granted to settlers varied over time, discernible patterns emerge when considering two distinct eras: pre- and post-seigneurial regime. During the seigneurial regime from 1780 to 1860, settlers cultivated vast expanses of land. Brazeau's lot measures 73.64 acres, typical for lots granted in that period. To provide some context, this lot is approximately the area of 56 American football fields, or roughly the space taken up by the Jacques Cartier bridge in Montréal (Figure 4).

By clicking "view full map" users are prompted to freely explore the archival dataset. By formulating a query to identify the lots owned by Pierre Brazeau across the entire time scale of the dataset, we can see that lot 137 was one of six lots Brazeau had acquired. If I change my query to include Etienne Montgolfier, the Sulpician priest responsible for granting land to Brazeau, the map sheds light on Montgolfier's extensive power and influence in the region throughout his tenure as the superior of the Sulpicians in Montréal (1759–1791). Montgolfier granted 243 lots of Indigenous land over the course of 32 years (Figure 5). Switching to a satellite base map reveals what is on these lots today. The cadastre lines from the eighteenth century still appear, etched onto the land like scars. The lots have not moved or changed shape; they have merely been subdivided.

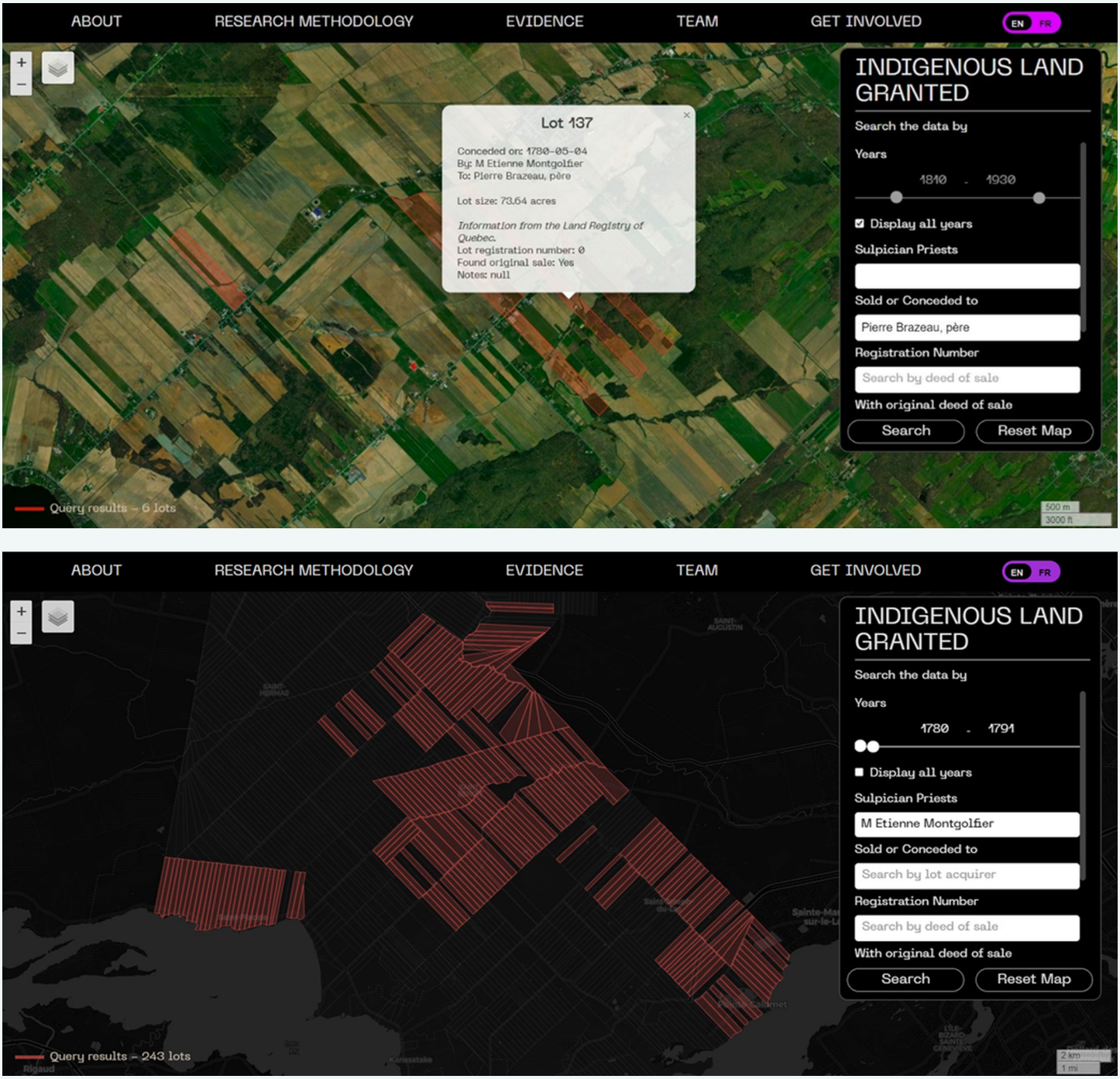


Figure 5. The example above shows the six lots attributed to Pierre Brazeau, lot 137 among them. The example below shows the 243 lots the Sulpician priest Etienne Montgolfier distributed to settlers from 1780 to 1791.

III. CHANGING POLITICAL CONTEXT

As the *Kanehsatà:ke Land Defense mapping project* was about to be published, the political context in Kanehsatà:ke drastically changed. G&R, a recycling facility established by members of Kanehsatà:ke's own community and tied to organized crime, started dumping toxic waste on the community's lands for economic gain (Peloquin 2023; Bergeron 2023; Crête 2024). The impact on the mapping project was twofold.

First, the Land Defender had to reframe the systemic issues plaguing their community in terms of environmental racism instead of land dispossession. They put in place a

coordinated campaign against G&R's dumping, one that required different kinds of mediation and therefore different kinds of maps. When I interviewed[1] a political campaigner working with the Land Defender about the situation, they explained "the media and political conversation around Kanehsatà:ke is currently entirely focused on the issues of safety and contamination. That is, in my view, what is stopping [*the Kanehsatà:ke Land Defense mapping project*] from being a useful tool today." They reflected, "when we started this project and the affiliate research, we didn't fully appreciate how challenging the internal situation in the community was. And it has gotten worse through the pandemic and post-pandemic." This viewpoint aligns with the current media narrative suggesting that the 1990 Oka crisis has disrupted governance and security in Kanehsatà:ke, allowing corruption and organized crime to wield significant, if not complete, influence in the area, to the detriment of the community (Curtis 2022; Richardson 2023; Crête 2024).

Second, the target audience for the *Kanehsatà:ke Land Defense mapping project* could no longer be reached, as the situation put strain on the relationships between Oka and Kanehsatà:ke and residents became very scared to associate themselves with the Land Defender and their work. "The people of Kanehsatà:ke have not felt safe for multiple generations now" wrote an anonymous group of Kanehsata'kehró:non in a letter circulated amongst journalists and politicians in May 2023. They cite dangerous criminal activity "including automatic gunfire in broad daylight," the dumping of the equivalent of 160 swimming pools of toxic waste, and land "being stolen piece by piece by land developers and assimilated Mohawks treating Kanien'kehá:ka Homelands as if they were all for the taking." There is a growing sentiment within the community that greed and lawlessness have taken hold in Kanehsatà:ke, with its core institutions either unwilling or unable to intervene. Relationships between residents of Kanehsatà:ke which were already fragile became even more so, when the Land Defender learned that the Band Council approved the G&R facility without ever consulting their community and kept quiet about all negotiations with the government related to its cleanup. The Land Defender's political campaigner put it bluntly: "right now, given the lawlessness, the government, the media, many people in the community believe that if you gave the land back, it would go to the gangsters."

They further added that "just because we have a tool doesn't mean that we can undo 300 years of history." According to the political campaigner, for the *Kanehsatà:ke Land Defense mapping project* to be effective, there had to be an opening to start a conversation about land rights, creating a setting where the map could meaningfully address broader issues like land dispossession. "In this case, you can think of public relations like making a contribution to an existing conversation," they said. At the moment, the map's utility remains hindered by the absence of bandwidth by land defenders to fight on every front at once. They are focused on fighting lawlessness, environmental pollution, and more internally managing the widespread fear within the region.

To carry on the *Kanehsatà:ke Land Defense mapping project* into the future, the Land Defender allowed me to identify and engage with other relevant audiences, assess our options, and report back, in order to explore how the mapping project might remain relevant and useful to them. This maintenance task was exploratory, with the goal of imagining how a database compiling cadasters and land patents could play a role in supporting Kanehsata'kehró:non sovereignty and governance. Although the Land Defender had the ultimate authority over the mobilization and direction of the map, it was my responsibility to anticipate how the *Kanehsatà:ke Land Defense mapping project* could evolve to align with the Land Defender's aspirations and objectives. These objectives were neither predefined nor the product of my own assumptions, but rather emerged in informal discussions with the Land Defender, their political campaigner, and their media strategist. "You've described this as the map maker. You're not just responsible for making the artifact, but also for giving it life. So now do that," said the political campaigner.

IV. MOBILIZING THE MAP ON SOCIAL MEDIA

The first objective we set with the Land Defender was to prepare the *Kanehsatà:ke Land Defense mapping project* for a possible launch on social media, targeting "traditional allies" who are typically mobilized by threats to Indigenous land rights. I knew that simply launching the map without a well-crafted communication

1. Semi-structured interview conducted on February 9th, 2024. The political campaigner will remain anonymous to protect the Land Defender's anonymity.

strategy could result in it not reaching this audience. To address this, I sought an interview[2] with the Land Defender's media strategist. Given their expertise in activist communications, especially in helping activists build their capacities in the digital space, I believed their insights would be useful for effectively mobilizing the *Kanehsatà:ke Land Defense mapping project* on social media to draw attention to and coalesce citizen engagement around the issue of Kanehsata'kehró:non land rights.

The *Kanehsatà:ke Land Defense mapping project* could help support Kanehsata'kehró:non struggles for justice, the media strategist assured me: "You're definitely touching on something that is part of activist decolonial education here and also awareness raising and maybe pushing people to act on these issues." However, from an activist communication perspective, the current format of the *Kanehsatà:ke Land Defense mapping project* needed to drastically change.

First, I was advised by the strategist to simplify the map, make it visually striking, and let it draw people in: "Most people watching have no idea who the Sulpician priests are anymore. It's just one level of information that is unnecessary for a top line." The *Kanehsatà:ke Land Defense mapping project* had to be diluted into a very digestible, visual hook—a shareable piece that entices users to go and look at the deeper layers of research. The challenge, in the words of the media strategist, is "present[ing] the data visually in a couple of different ways that would be simplified and evocative without necessarily seeing all the layers of information which can be overwhelming to activists."

Figure 6. One version of the shrinking map of Palestine, juxtaposed with the new version of my own map. *Shrinking Palestine, Expanding Israel* by **Visualizing Palestine**.

To visualize land dispossession in the *Kanehsatà:ke Land Defense mapping project*, I had originally opted for a visualization emphasizing the increase of colonial settlement rather than the decrease of the Kanehsata'kehró:non land base. The rationale behind that decision was (1) to mirror connections that others have drawn between

2. Semi-structured interview conducted on December 20th, 2023. The media strategist will remain anonymous to protect the Land Defender's anonymity.

settler colonialism and phenomena like bacterial infections (Veracini 2014) or gentrification (Ellis-Young 2022); and (2) to avoid representing Kanehsata'kehró:non lands with solid boundaries (Thom 2009). Basing the map on this shrinking polygon could mislead audiences into believing that Kanehsata'kehró:non lands were confined to that area.

However, the media strategist's experience made me see another perspective: "the whole seigneury system and all that, that's for people like journalists, teachers, that have the time and appetite to go deeper . . . most people just share the takeaway like, say, a shrinking map and they will never go and look at the deeper levels of info." The decision to create another map, focusing on the decrease of the Kanehsata'kehró:non land base rather than an increase in colonial settlement, was guided by a strategic intention to capture the attention of a broader ally network.

We also discussed integrating the map in the contemporary social media information-scape. Recognizing the competitive nature of social media attention, the media strategist suggested rendering the data in the *Kanehsatà:ke Land Defense mapping project* in formats that draw parallels with other well-known concerns in the news. They pointed out that "some of the most powerful content I've seen go around us, specifically from Indigenous folks in Canada is talking about the parallels between Palestine and their experience." A map emphasizing the shrinking Kanehsata'kehró:non land base would be more likely taken up in current global discussions and alliances if it is designed to be in dialog with other maps, in this case maps of Palestinian land dispossession from 1947 to present. The objective was to facilitate the *Kanehsatà:ke Land Defense mapping project*'s accessibility, encouraging people to share and interact with it. "The key to help sharing," the media strategist explained, "is to give people something easy for them to post." To achieve this, I converted the online map to a static image which could be easily shared, and simplified the visual representation to include only two colors representing settler lands and Indigenous lands, mimicking a very popular shrinking map of Palestine (Figure 6).

The media strategist felt that this would in theory be helpful, but also suggested that, in addition to a simplified map that tells the story in seconds, the *Kanehsatà:ke Land Defense mapping project* should probably also exist on a website as a repository of all the data and information for the media. "The map, as a resource for media is definitely important . . . it's a place where journalists can go and see that the research was done," they concluded.

The last important thing to think about, according to the media strategist, was how to expand the project's impact through replication. Although the *Kanehsatà:ke Land Defense mapping project* website has pages to guide viewers on how to map the contents of its archives using georeferencing and spatial analysis tools, "we don't expect people to go and self-educate on a site with a lot of information." Teachers are an interesting audience that could facilitate the replication of this research, the strategist reflected, and recommended targeting influential teachers who align ideologically with the cause and leveraging these individuals as conduits for disseminating the *Kanehsatà:ke Land Defense mapping project* among their extensive networks of like-minded colleagues across the country. There would be "just one step more of packaging" to turn this easy-to-absorb teaser image into some kind of teaching aid and hopefully inspire others to replicate this in their communities. "This would be an amazing interactive learning tool for us to assign to a class to have a look through" said the media strategist. Fortunately, it just so happened that I had presented the map during a guest lecture in a course on digital mapping at Concordia University.

V. MOBILIZING THE MAP AS A PEDAGOGICAL TOOL

This is how the *Kanehsatà:ke Land Defense mapping project* found its way to a new audience among undergraduate students enrolled in a course entitled "Geomedia and the Geoweb." In the course, students experiment with different steps in the mapping process from data collection to map publication. Through two focus groups,[3] I aimed to determine whether the project could inspire students both to replicate its methodology and to understand and support the concerns of the Land Defender already doing the work of fighting land dispossession on the ground.

The conversation around the *Kanehsatà:ke Land Defense mapping project* was semi-structured. Following a presentation of the project, each student was given a set of

3. Focus groups lasted one hour each and were conducted on November 13th, 2023.

reflection questions, which varied from those that asked for general "gut reactions" to the website as a whole to ones that invited more specific comments on optimizing the map and its presentation (design, user experience, etc.). I asked them things like: "What idea(s) or feature(s) of the map/website do you like? What idea(s) or feature(s) of the map/website do not appeal to you? What else, if anything, do you think someone seeing this website might find confusing and want to know more from the people who developed this idea to help them understand it better?" These questions were first answered individually before being collectively discussed as a group. The group discussion was an opportunity for me to address the students' comments and feedback, and to guide our collective reflection to explore and clarify any points of tension that emerged. The focus groups were made up of 27 and 19 students, respectively. Though this is by no means a representative sample of the general population, these discussions yielded some valid points which are interesting to relate here.

Some were already familiar with the historical context, expressing sentiments such as "I feel informed but not surprised, considering my knowledge of the past," or "I knew about dispossession but didn't know to what extent." On the other hand, those less acquainted with the subject matter found the experience eye-opening, with observations like "I was surprised to learn how the land promised was just given away so easily," and "I learned about more atrocities from the Catholic Church, ones which haven't been broadcasted to the public." The diverse range of responses underscored the *Kanehsatà:ke Land Defense mapping project's* effectiveness both in reinforcing existing knowledge and introducing new perspectives. Students unanimously agreed that the visual representation was impactful. Comments like, "seeing the land fractured into so many parcels was daunting," "I was surprised to see the amount of lots that were sold," and "I learned about how large these lots were," reveal that the map was able to effectively convey the rhythm, scope, and scale of dispossession to some of the students. The design and technical aspects of the map were also well received: "I'm impressed by the detail and presentation of the research. It reminds me of a variety of *New York Times* geospatial investigative articles as well as some forensic architecture investigations and presentations," said one student.

The discussion then turned to the *Kanehsatà:ke Land Defense mapping project*'s shortcomings. Though the students felt they had learned something about land dispossession through a quantitative analysis of the data, they felt—according to one student—that "emotionally, it didn't hit super hard because of the lack of human accounts." "Numbers on their own can be desensitizing," one said. To their point, land patents are by nature reductionistic and bureaucratic. Land registries do not invite people to reflect on the stories behind each land transaction. In the *Kanehsatà:ke Land Defense mapping project*, I had repurposed the cadasters and the land records to advocate for Indigenous land rights but ended up reproducing the reductionism, and erasure that was built into those records. How do you bring the land in the center of the map when all we have is numbers? The risk of working with land patent records is reinforcing capitalist valuations of land even as you seek to counter them. This has also been a criticism of the *Land Grab Universities* project tracking the wealth transferred to universities across the United States through the dispossession of Indigenous land (McCoy et al. 2021).

"The fact is you will never get the full explanation," I explained, "because we purposefully designed the map to align with the research objectives set by the Land Defender." A quantitative analysis is a deliberate act to show what happened without betraying the full content of Kanehsata'kehró:non dispossession experiences. In a context where Indigenous people are invasively and insensitively over researched (Tuck and Yang 2014), the map in a very real sense works like a barrier; it is designed to be a closed door. By steering the research up the power ladder and focusing on those who caused the harm (the Church and the State), the Land Defender asserted control, both over how the impact of land dispossession was measured, and how it was framed.

Moreover, a quantitative analysis isn't in and of itself antithetical to Indigenous methodologies (Schultz and Rainie 2014; Walter and Suina 2019). Rather, the detrimental impacts of quantitative analysis stem from the fact that historically "quantitative researchers engaged in virtually no collaboration with Indigenous people with respect to the categories used to organize the information they proposed to collect, the specific questions asked, the communities from which the information was drawn, and the eventual interpretations derived from their efforts" (Andersen and Kukutai 2016, 59). In our case, valuable information was gleaned through a quantitative surface analysis. It produced a "counter-cadaster" which the Kanehsata'kehró:non can deploy to benefit their community. The tension

between the desire of the Kanehsata'kehró:non Land Defender to keep the research focused on the perpetrators (the Sulpician priests), and the students' craving for more human, intimate accounts hints at the challenges of working with Indigenous research frameworks in Western academic institutions. It begs the question of whether it is possible to infuse a more human aspect to a map of Indigenous land dispossession without it becoming "a spectacle of individual pain for settler consumption" (Garneau 2016, 34).

It is also noteworthy that the two objectives explored so far—the use of the map on social media and its role as a pedagogical tool—have led to distinct potential pathways for the *Kanehsatà:ke Land Defense mapping project*. To engage an ally network, the media strategist advised simplifying and repackaging the map to encourage widespread sharing and replication. In contrast, students felt that the map could be complexified to provide more multi-layered perspectives, potentially by being presented alongside art, music, or documentary film.

VI. MOBILIZING THE MAP WITH QUÉBÉCOIS HISTORICAL ASSOCIATIONS

During the data collection phase of the *Kanehsatà:ke Land Defense mapping project*, I had worked to identify data types that could be valuable to the Land Defender—in this case ecclesiastical cadasters and land patent records. In the maintenance phase of the mapping project, I needed to anticipate interactions with communities outside the project's original scope and consider whether to adapt our archival geospatial repository to accommodate these new communities. There came a moment when the Land Defender asked me to investigate a prominent land developer who acquired a significant amount of land following the Oka crisis. The objective was to expand the *Kanehsatà:ke Land Defense mapping project* to trace all transactions involving the land developer's properties, going beyond the initial land theft in the seventeenth century to understand the full sequence of transactions that led to their current holdings (also known as the chain of titles). To tailor the *Kanehsatà:ke Land Defense mapping project* to fit this objective, I needed to place the map in strategic locations to reach people compiling notarial documents or conducting genealogical research in order to encourage them to share their data.

To achieve this, I interviewed[4] Patrick Charbonneau, a friend I had made while collecting land patents in the initial phases of the *Kanehsatà:ke Land Defense mapping project*. I first discovered Mr. Charbonneau through his blog, where he provided valuable insights into navigating the Sulpicians' archives. Our ensuing discussions led me to the "Patrimoine Laurentides" association, a collective of genealogy and local history enthusiasts dedicated to compiling data on old properties, including land patents. Since then, Mr. Charbonneau and I have regularly kept in touch, sharing resources, exchanging strategies, and talking about life in general. Research on Indigenous-settler alliances highlights the potential of enlisting these "non-traditional" partners (Grossman 2017; Wanvik and Caine 2017; Hillis et al. 2020). Reflecting on this, I considered Mr. Charbonneau's advice particularly relevant for exploring how the *Kanehsatà:ke Land Defense mapping project* might engage Québécois history enthusiasts who would not normally be receptive to Indigenous land rights, either because they are opponents or because they are not too concerned by these kinds of issues. For the purposes of clarity, I have translated his comments from French to English.

"Québécois historical associations might have the data you are looking for," Mr. Charbonneau told me, "but reaching them requires many trade-offs and you have to consider whether it's worth it." He started by saying "a big challenge, in my opinion, is that your target audience, the people who are most interested in doing this kind of research, are the ones who are least able to learn the tools needed to do it." Hobby genealogists are typically retirees whose skills and comfort using digital tools are likely limited (Tsai et al. 2015). This limitation, Charbonneau noted, isn't necessarily educational. He cited his parents, who were among the first university graduates with degrees in computer science, yet now scramble to incorporate new technologies in their daily lives. This perspective diverged significantly from what I had previously heard from the Land Defender's media strategist. When I asked whether they believed the map should also exist in a tangible form, the strategist had shrugged and answered, "every oldster has Facebook now." Anderson and Perrin (2017)

4. Semi-structured interview conducted on February 8th, 2024.

have noted that while more seniors in America are using cellphones and accessing the internet, adopting and navigating these technologies is still challenging for them. As I am writing this, the mapping tool is quite simple to navigate in the sense that it was designed as an interface users can browse through to perform simple predefined requests. It is a static resource, like consulting a book in a library—certainly no problem there. But if the objective is to make it sustainable, maintain it, and potentially expand it, then for Mr. Charbonneau, that's a whole different story: "Yes, today, you can simply go in, connect, look up a name, click on it, and view some data. That's easy. But that does not really reflect the dynamic potential of your project . . .. For that, other people need to be able to use it and develop it."

The fact that the *Kanehsatà:ke Land Defense mapping project* was not built with the idea that anyone could add entries is the biggest obstacle to the sustainability and expansion of the map, according to Mr. Charbonneau. Evolving the *Kanehsatà:ke Land Defense mapping project* towards collaborative or crowdsourced versions would require a specific infrastructure with a login or submission system and a review and validation process (Shahamati et al. 2022). Moreover, streamlining the archival data collection process poses another set of questions. As Mr. Charbonneau put it, "How do you do it so that it's minimal effort for you? Because you don't want to type all that out by hand. At the same time, you don't want to import tons of unreliable data. How do you validate it?". And even if the *Kanehsatà:ke Land Defense mapping project* became open to contributions, the fact of the matter is that this map is about territorial dispossession. Would anyone living on the territory, seeing their great-great-grandfather's name in the records, be motivated to link themselves with that part of history? Similar efforts underway by African American communities to retrace relatives in the slave trade (Gates 2014) or asking for the return of land that was historically taken in government seizures (Burch 2023) have not benefited from much involvement by those of European descent. As Mr. Charbonneau says, "it's not the slavers' families who are trying to understand what happened."

Expanding the national narrative to include other historical experiences and alternative visions of the past has been highly debated within the historical community in Québec and Canada (Moisan et al. 2020). There is also an emotional risk that the research might be discredited by more conservative historians, for whom research on land dispossession within contemporary land claims is acceptable, but who view it as moralistic and militant to frame this research within the context of the story of Oka, Mirabel, St-Jérôme and how people came to live there. To be sure, certain aspects of the *Kanehsatà:ke Land Defense mapping project* disrupt powerful Québécois nationalist frameworks, exposing the settler colonial "logics of elimination" at their core (Wolfe 2006). These aspects often don't fit well into established historical interpretations and are sometimes seen by historians of the area as inappropriate in a "neutral" and "objective" research context.

While I could find more funding to create a collaborative mapping infrastructure that would enable genealogists to contribute new archival information, Mr. Charbonneau suggested an alternative approach: "A government organization such as the National Library and Archives of Québec (BAnQ), while not wealthy, might have more resources to dedicate to the longevity of the project." However, for the Land Defender, this partnership was not viable because the BAnQ would likely make the *Kanehsatà:ke Land Defense mapping project* archival geodatabase open source. This had been the case for Christian Dessureault, a Québécois history professor, who in the years following his PhD thesis had partnered with the BAnQ to digitize and host a database containing thousands of notarial inventories in the Montréal region from 1791 to 1840.

In this scenario, a partnership with the BAnQ would make accessible archives of great civic value, given the Sulpicians' role as seigneurs of the island of Montréal for 200 years. At the moment, the accessibility of these records is limited, with the Sulpician priests acting as gatekeepers. Open geospatial data could create opportunities for new research collaborations with a national historical institution, leading to more involvement from the historical community and more data collected for the *Kanehsatà:ke Land Defense mapping project,* which was the Land Defender's need at the time. However, partnering with the BAnQ would also jeopardize the Land Defender's control over how the data is stored, shared, and reused. Even though the *Kanehsatà:ke Land Defense mapping project*'s database is sourced from archival records that are already in the public domain, both the Land Defender and I view our database as containing Indigenous data (Russell 2005; Rose-Redwood et al. 2020). Therefore, the Land Defender believed it was important to restrict the mobilization and translation of the *Kanehsatà:ke Land Defense mapping project's* data to the public and to establish access and control

mechanisms to prevent any repurposing of cadasters and land patents that do not explicitly address Kanehsata'kehró:non land rights.

Although no research partnerships materialized with the BAnQ or Québécois historical associations, I used this outreach opportunity to compile a list of potential partners and archival databases in their possession that might be of interest. If the Land Defender decides to expand the *Kanehsatà:ke Land Defense mapping project* into a collaborative effort, we will need to establish procedures for working with others who may wish to access or contribute notarial documents in the future. This includes outlining the actions we will take if agreements and commitments are not honored (O'Brien et al. 2024). In this case, the fire keeper might also be considered as the gate keeper (i.e., the person someone should contact if they want to use or add some data).

CONCLUSION: BEING THE FIRE KEEPER FOR THE *KANEHSATÀ:KE LAND DEFENSE MAPPING PROJECT*

In this paper, I have aimed to demonstrate how the role of a fire keeper can serve as a valuable perspective for examining the concrete actions involved in the ongoing maintenance of a mapping project conducted from within academia, with an Indigenous land defender. This lens is particularly relevant to understanding how map maintenance tasks align with Indigenous Data Sovereignty (IDS) principles and feminist approaches to care.

Maintenance is often seen as boring or routine, and sometimes it can be. However, in my experience, it was a dynamic process that introduced new people and perspectives into my mapping practice. To remain respectful and responsive to the complex and sometimes opaque social dynamics in Kanehsatà:ke after the G&R crisis, I sought new engagement opportunities outside the community. Through ongoing conversations with the Land Defender, I identified new target audiences and assessed how they could contribute to achieving the Land Defender's objectives. This included interviewing the Land Defender's political campaigner and media strategist—each of whom possessed deep contextual knowledge—but also engaging with non-traditional allies, like university students and a Québécois history enthusiast, who, despite their lack of initial context, could assist in replicating and expanding the *Kanehsatà:ke Land Defense mapping project*.

Like Mattern (2018) and Young (2020), I think of maintenance as making, not merely preserving things. Maintenance is a creative act which leads to new artifacts. It requires flexibility and adaptability in how we think about and address issues, rather than sticking to rigid or predefined solutions. I was struck by the diverse and sometimes radically opposed directions proposed for the map. While the information on the *Kanehsatà:ke Land Defense mapping project* needed to be smoothed out and simplified for social media, the opposite appeared to be true in the classroom. University students found the quantitative approach to land dispossession off-putting and asked to hear more human, multilayered perspectives. To encourage public participation and replication, the online map could be re-designed, both to cater to tech savvy teachers and/or retired history enthusiasts. While the Land Defender chose not to follow through with some connections, like those with Québec historical associations, it is important to acknowledge that these same groups provided crucial support early on by sharing copies of archival materials that the Sulpician priests had refused us access to (Denieul-Pinsky 2024).

Maintaining geodatabases and mapping tools is an ethic of care (Lucchesi 2022). In collaborative mapping projects, maintenance involves actively monitoring the evolving dynamics of situations, collaborators, and communities, and making sure that the project's communication, vision, presentation, content, and direction adapt accordingly (Graziani and Shi 2020). Without this ongoing care, mapping projects risk becoming outdated, misaligned, or worse: harmful to the communities they are supposed to serve. As the fire keeper for the *Kanehsatà:ke Land Defense mapping project*, my primary responsibility was maintaining a strong, trusting relationship with the Land Defender. Regular presence and engagement outside the formal mapping context were essential for building trust and understanding the Land Defender's evolving needs and vision.

Regrettably, the time invested in building trusting relationships and aligning goals is rarely funded (Krüger et al. 2021). It is important to change maintenance standards,

O'Brien and colleagues argue: "foundations, agencies, universities, and other institutions that fund the creation and maintenance of repositories must appropriately support the transformation of repositories to implement CARE" (2024, 21). This is particularly relevant for mapping projects with Indigenous communities, where commitments often extend beyond "traditional" academic timelines (Lucchesi 2020) and potentially beyond "the working life of an individual researcher" (O'Brien et al. 2024, 2). In this case, activities like phone calls, attending protests, and informal meetings over breakfast or lunch, though essential to maintaining the *Kanehsatà:ke Land Defense mapping project*, were not accounted for in my initial research proposal. These relational maintenance tasks required time and resources, which needed to be allocated at the beginning of the project, not retroactively at the end (Krüger et al. 2021; Shahamati et al. 2022). Although the Land Defender, the political campaigner, and I carefully planned the release of the *Kanehsatà:ke Land Defense mapping project* with clear objectives and a good sense of who our target would be, these preparations couldn't help us overcome the obstacles and challenges we faced when the political and media context in Kanehsatà:ke shifted to focus on illegal dump sites and organized crime.

So, what if researchers spent less time making maps, and more time investing in the relationships that shape them? Taking on the role of the fire keeper for the *Kanehsatà:ke Land Defense mapping project* became an exploration of options rather than a rush to deliver an output. By "pressing pause," the Land Defender and I intentionally "slow[ed] down and ma[de] time and space for reflexivity in our workflows, our collaborations, and our mappings" (Kelly and Bosse 2022, 400). We made sure not to publish hastily but rather "to cocreate information from a place of rest and in relation with all things that affect the work we put forward" (O'Connor et al. 2023, 63). Emphasizing process over product, the maintenance work led to valuable insights for the Land Defender and for me, the mapmaker.

For the Land Defender, having a fire keeper on their team was crucial for maintaining control over the future direction of the *Kanehsatà:ke Land Defense mapping project*. The fire keeper helped anticipate what would be needed for the map to be mobilized in specific spaces—whether on social media, in classrooms, or within Québécois historical associations—for specific purposes, such as informing, contesting, liaising, or expanding impact. Through interviews conducted by the fire keeper with potential target audiences, the Land Defender was able to make strategic decisions about how the *Kanehsatà:ke Land Defense mapping project* should be deployed and which objectives and audiences, if any, would best support the reclamation of Kanehsata'kehró:non lands while also protecting their geospatial and archival intellectual property.

As the fire keeper, working with the Land Defender allowed me to reflect on my approach to mapping colonial archival records and the values embedded in these visualizations. I observed how the map could either reinforce or challenge colonial legacies. While the Land Defender had the final say in decision making, I understood that they should not have the burden of doing all the work themselves just by virtue of their experience. Throughout the mapping project, I learned which were my responsibilities and which were the Land Defender's.

A crucial aspect of my role was assessing the benefits and trade-offs of each map evolution. I had to first consider: was the archival data still secure and under Indigenous control? I realized that my initial impulse to digitize historical documentation on Indigenous land dispossession was more complex than anticipated. Simply making archives accessible online through interactive maps does not guarantee their relevance or usefulness. There is a delicate balance between sharing historical facts and respecting the Land Defender's conditions. Access should be safe and respectful, and compromise neither ownership nor control (Kukutai and Taylor 2016). Moreover, research shows that open geospatial data portals are often underutilized globally (Quarati et al. 2021), and organizations may invest in open data more for appearances than for genuine value creation (Temiz et al. 2022).

Secondly, I had to consider: does the proposed map evolution affect the accuracy or quality of the data? Using the map as a teaching tool could help educators address topics related to colonization and inspire students to undertake similar projects. However, I learned that a detailed user guide would be essential to ensure that the list of names, dates, and locations collected are repurposed into designs that respectfully convey their significance to an audience perhaps unfamiliar with viewing these records through the lens of Indigenous land dispossession.

As I have argued throughout this paper, it is the fire keeper's responsibility to maintain the map and the geodatabase in their care. The end of a funding cycle does not have to mean the end of the relationship. Instead, it could be an opportunity to plan for the archiving of the database or the potential transfer of the fire keeper role to another Indigenous or non-Indigenous person designated or approved by the Land Defender. Although I can stay on as the fire keeper and provide maintenance work for free due to my existing resources and privilege, I recognize that this approach is not a universal solution for the broader issue of maintaining tools for activists. I share my experience here in order to connect with others facing similar challenges and offer insights that may be relevant to their situations. Echoing Graziani and Shi (2020), Leal et al. (2021) and D'Ignazio (2024), this experience has left me with many questions about the role of academics and technology in supporting activist efforts. My experience with the *Kanehsatà:ke Land Defense mapping project* has shown me that the long-term maintenance of maps may hinge less on technical evolutions and more on cultivating stable and trustworthy relationships. My hope is that the fire keeper concept will be taken up by other cartographers and community workers both as a helpful role in projects that use mapping as a tool for advocacy and as an entry point to reflect on the possibilities and challenges of building and sustaining mapping tools for Indigenous communities from within academia.

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