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Supporting land stewardship and language revitalization through the Tlingit Language and Land App

Abstract

This paper discusses the development of the Tlingit Language and Land App, a place names app developed collaboratively with the Taku River Tlingit First Nation Land Guardians in Atlin BC, Canada. This app is an extension of the Taku River Tlingit Place Names website and GeoLive map, which is web-based and therefore cannot be accessed on the land. Thus, in order for the Tlingit Language and Land App to be accessible on the land, it must be operational offline. This app will serve as a resource for users to learn about place names and their significance, and will enable language learners to engage with language on the physical landscape through digital technology. This project supports the Taku River Tlingit First Nation Land Guardians' work around land stewardship, as a key aspect of Tlingit culture, and complements Taku River Tlingit First Nation's ongoing work around land use, place names reclamation, and language revitalization.

Keywords: Indigenous language revitalization, place names reclamation, land stewardship, digital technology, collaborative research

1. Introduction

Many Indigenous scholars assert that Indigenous languages are inseparable from the land. Consequently, language loss and dispossession of land caused by settler colonialism are deeply interconnected. One way in which Indigenous communities can continue to steward their land is through reclaiming their ancestral languages, including traditional place names (SCHREYER 2011). Place names embody generations of shared knowledge, history, and memories on the land (IGNACE 2008; ARMSTRONG 2018); as such, they are integral to relationships with the land. This research considers the ways in which digital technologies can be leveraged to support language reclamation and revitalization initiatives, while also helping to strengthen relationships with the land. In this paper, I provide a preliminary report on the development of the Tlingit Language and Land App, a place names app developed collaboratively with the Taku River Tlingit First Nation (TRTFN) Land Guardians in Atlin, British Columbia (Canada). This app will serve as a resource for users to learn about place names and their significance, and will support the Land Guardians' ongoing work around land stewardship.

2. Theoretical background

Relationships with the land, and with all beings on the land, are social and reciprocal, and the reciprocal nature of these relationships is evident in the responsibilities that humans hold as caretakers. Language plays an important role in facilitating these relationships. For instance, TWITCHELL (2018: 14) explains that "the Tlingit people have developed a series of balanced and reciprocating systems that involve clan law, kinship systems, knowledge of medicinal plants, communication with all things on the land, understanding of a complex spiritual landscape, and trading networks that cover the entirety of the Northwest Coast [of North America]." These systems, TWITCHELL asserts, are encoded in the language. Similarly, ARMSTRONG (2018: 96) explains that "the concept of tmixʷ emanates from the Syilx language and is illuminated in the oral story tradition. The word allows access to the Syilx concept of the human duty to nature." Responsibility to tmixʷ – to relationships with the land and all beings – is therefore a key feature of Syilx culture, "constructed from the deep ecological knowledge of the human responsibility that must reside in each generation and must move continuously forward through language, practice, and oral story" (ARMSTRONG 2018: 97).

It is through language that people orient themselves on the landscape. Using specific linguistic constructions, speakers learn how to describe different types of landforms (e.g. mountains, lakes, rivers, etc.), as well as how to conceptualize, understand, and relate to the landscape. For example, IGNACE & IGNACE (2017: 236) explain that "by way of lexical suffixes that derive from shapes of the human (or animate) body, [Secwepemc] words for landforms inscribe the shapes of living things into the landscape." Language also encodes speakers' relationships with other beings on the land through grammar. For instance, FERGUSON & WEASELBOY (2020: 7) note that in Cree, "other-than-human" beings are obligatorily marked with personhood and animacy. As such, the authors assert that "the very structure of the Cree language predicates a certain kind of relationship with Land" (FERGUSON & WEASELBOY 2020: 7).

Language revitalization can be a vehicle for enacting justice and confronting colonial dispossession, particularly through initiatives that also address other aspects of Indigenous sovereignty, such as land stewardship, education, foodways, law, and governance. Remembering and relearning place names as an "act of caring for Land" can be a powerful way of using language to signal belonging to the land (FERGUSON & WEASELBOY 2020: 6). Place names "serve to anchor perceptions, memories, and ideas of place in particular locations" and allow people articulate connections to the landscape (APORTA ET AL.

2014: 230). INGRAM (2021: 190) points out that "place names are a significant source of Indigenous Knowledge, including semantic conceptualizations of space and TEK—Traditional Environmental Knowledge, both of which demonstrate deep ties to a geographic location or landscape."

Despite a persistent digital divide impacting access to technological infrastructure, many Indigenous communities are using digital technologies to facilitate language learning and reconnect with place-based ancestral knowledge (GALLA 2018; ARISTA 2020). Digital technologies, particularly mobile or relational technologies, can help to foster intergenerational relationships by allowing participants to interact with and care for each other virtually (MAYORAL BAÑOS 2018; MEIGHAN 2024). These technologies can also be leveraged to create immersive experiences for learning, for example by "connecting people to ancestral knowledge through the use of digital applications like AR, VR and iterative game play" (ARISTA 2020:103), or by encouraging participants to engage in "the creation of a story" through gaming technologies (PÂQUET 2020: 8). Likewise, digital storytelling can be useful for fostering self-representation as well as sharing language and cultural knowledge (PÂQUET 2020), and it can be a powerful tool for "building and envisioning liberation and sovereignty" (SAM ET AL. 2021: 3). Through Indigenous mapping or counter-mapping initiatives, particularly community-driven initiatives that centre principles of Indigenous data sovereignty (TAYLOR 2021), digital technologies can also be used to foster Indigenous resistance and resurgence. MONTOYA (2021: 9) asserts that digital counter-mapping can "confront and re-orient the colonial gaze through a nuanced rendering of relationships with space, place, and memory."

3. Situating the project

To properly situate this project, it is important to explain where we are in the world: the offices of the TRTFN Lands Department and Land Guardians are located in the small town of Atlin, in northern British Columbia. Atlin is roughly in the middle of Taku River Tlingit traditional territory, which extends across both the provincial border between British Columbia and the Yukon, and the international border with the United States in Alaska. I myself am a doctoral student at the University of British Columbia, at the Okanagan campus, which is located in Kelowna, in the southern interior of British Columbia. However, I am currently living in the city of Victoria (on Vancouver Island), which is in the south-west corner of British Columbia. Because our project team members live so far apart, we are not able to meet in person very often, and most of the project development is being conducted remotely.

As stated above, land stewardship and maintaining a strong reciprocal relationship with the land are important aspects of Tlingit culture. This includes knowledge of the land, which is held in language – particularly in place names. When you enter Taku River Tlingit First Nation Territory, you pass a welcome sign (see figure 1) that displays an excerpt from the TRTFN Constitution (Governing Principle 2.3), stating: "It is the Land from which we come that connects all life. Our Land is our lifeblood. Our Land looks after us, and we look after our Land. Anything that happens to Tlingit Land affects us and our culture." The TRTFN Land Guardians uphold this relationship with the land through actively stewarding the land, monitoring land activities, and working to mitigate the effects of climate change, on their territory especially. They "act as the 'eyes and ears' of TRTFN Lands Department by monitoring land activities that inform decision-making" (from the T'AKHU Â TLÈN CONSERVANCY website).

Figure 1. TRTFN welcome sign (photo credit: E. Comeau 2023)

4. The Tlingit Language and Land App

There have been a number of extensive mapping initiatives at TRTFN over the last several decades, and one of the projects in particular gave rise to the Tlingit Language and Land App. This is the *Taku River Tlingit Place Names* GeoLive platform, which was developed by a team that included University of British Columbia (Okanagan campus) researchers Dr. Christine Schreyer and Dr. Jon Corbett, with members of the TRTFN Lands and Resources Department. The GeoLive platform hosts a series of stories and quotations from community members and Elders, as well as an interactive map that includes approximately 250 Tlingit place names, along with audio recordings (for pronunciation) and photographs, as well as some related vocabulary around plants and animals. Because GeoLive is web-based, an internet connection is needed to access it. However, in Atlin, the internet is only accessible with a satellite connection, and there is no cell service at all. So when the Land Guardians are out working on the land – which they do much of the year – they are not able to access the GeoLive map. This is where the Tlingit Language and Land App project comes in. We are building a mobile place names app, similar to the GeoLive map, that can be used offline – without internet or cell service – and that the Land Guardians and other community members can use when they are out on the land. Using this app, the Land Guardians will be able to access information about place names wherever they are on the land, even when they have no access to mobile data or Wi-Fi. Similar to the GeoLive map, the idea here is that when a user selects a point on the app, they will be able to learn about the Tlingit name, its meaning and how to pronounce it, what plants and animals can be found there, and any relevant geological features. Many Tlingit place names describe flora, fauna, or visible features on the landscape. As such, these terms are integral to understanding both meaning and context in Tlingit place names. This information is central to land stewardship as well as language learning.

In May 2024, we built a prototype of the app, which was tested during a Canoe Journey that a number of community members took part in along T'aak̲ú Héeni (or *Taku River* in English). The prototype shows part of the route they took (see figures 2-5). We used QGIS to compile the map and all the data, which was then stored on QField Cloud. The prototype, including the map and the data, can be accessed on any mobile device (like a smartphone or tablet) using the QField App. The caveat here is that users must have an internet connection initially to download and synchronize the app, but once they have done that, they should be able to access and even edit the map offline, including the audio recordings and images. Figures 2 and 3 show what the prototype looks like zoomed out and in, respectively. The markers on the map correspond to names in this region that appear on the GeoLive map. The menu (located in the top left corner) gives the option of showing or hiding the name labels, and users can also choose to hide the satellite image tile and just look at the base map, which was sourced from Open Street Maps, or vice versa. When a user taps on the screen near one or more points on the map, the points are highlighted and a list pops up (see figure 4). They can then tap on one of these names, and all information associated with the selected point will be displayed on the screen, including any images and audio recordings associated with it (see figure 5). Pictures can be expanded to fit the user's device screen by tapping on them, and users can tap on the audio recordings to listen to them. There is also an editing function, where users can add points to the map, add images or audio recordings, or add comments to existing points.
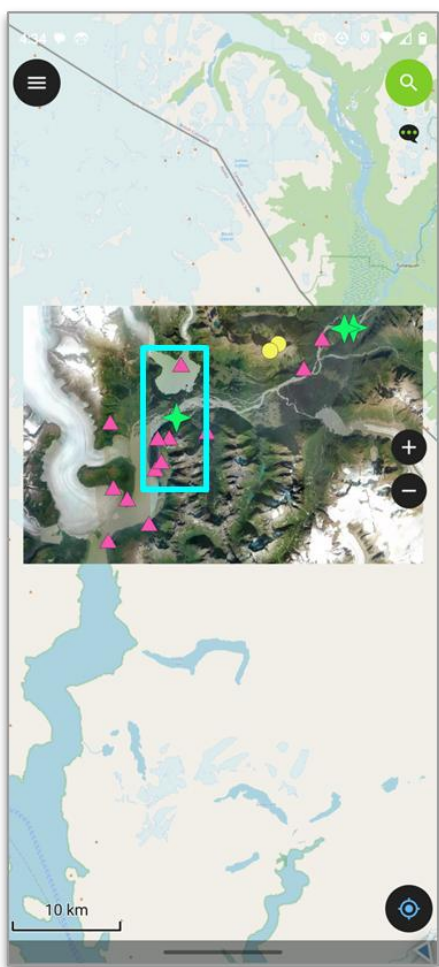

Figure 2. Prototype, zoomed out view
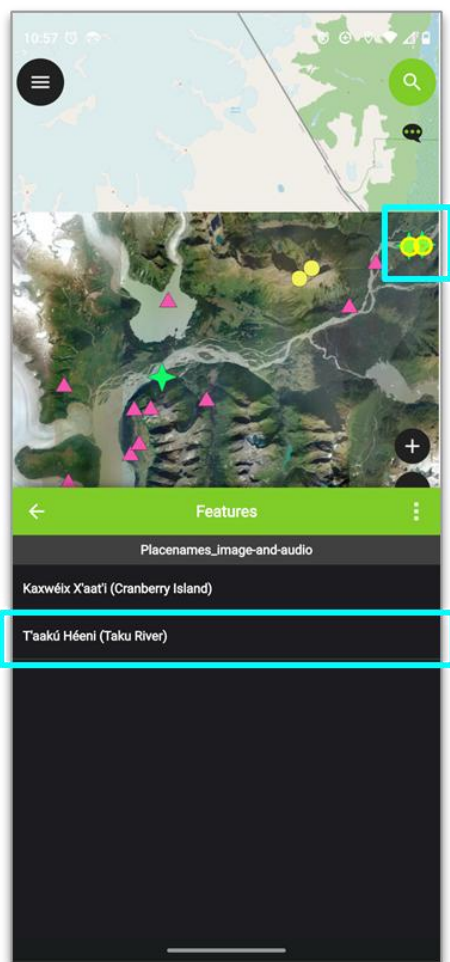

Figure 3. Prototype, zoomed in view

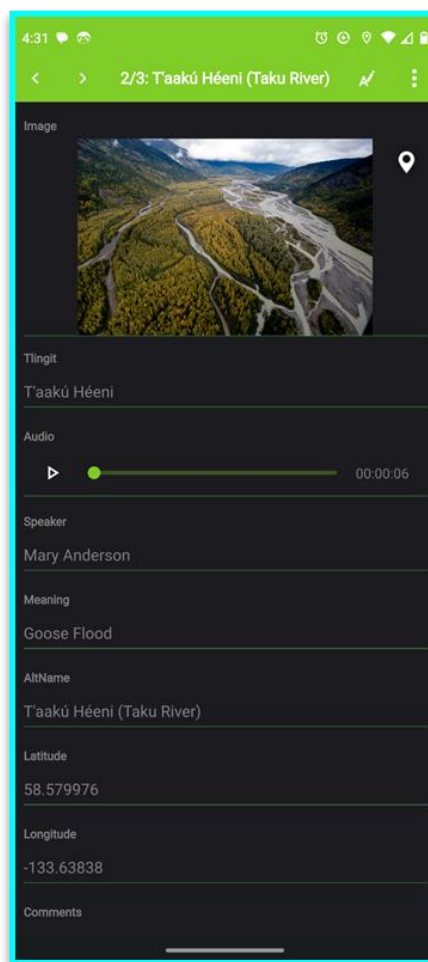**Figure 4.** Cluster of place names highlighted

Figure 5. Place name selected

This prototype shows the general vision of the app, which will be built on a much larger scale. The next step in the project is to evaluate this initial prototype and then to plan the next version. Subsequent versions and prototypes of the app will go through similar testing processes, and we intend to share a full version of the app with community members before it is launched, so that they can test out the app and provide feedback. The app will operate in such a way that users will be able to add new information to the map (including photos and audio recordings, notes, and new entries, etc.) while they are out on the land – even when they are offline. We are working on defining the process whereby new information submitted by users in the field is vetted before being pushed to the active project files. We have also started drafting a plan for the long-term maintenance of the app, so that it will continue to be accessible and functional even after active development of the project has ended.

This prototype works quite well, so far; however, it contains only a small subset of all the names that will eventually need to be added to the app. When we ultimately scale up the project and open up access to the wider TRTFN community, we will need to confront the limitations of relying on a platform like QField Cloud for hosting the data and managing user access. We expect that the app will require a large amount of storage space, for all the data as well as the images and audio files. Therefore, we are also considering options for hosting the app in the community instead, e.g. on a Raspberry Pi server module. Furthermore, in self-hosting, the community will have greater control over what happens to all of their data, as well as

who has access to it. This also allows us to build the project in a way that can be maintained long-term with minimal resources and potentially minimal interference.

5. Why this work matters

Tlingit place names carry rich knowledge about the landscape. They often describe historical events, physical features on the landscape, or the plants and animals that can be found in a particular area. These names are important for navigation, and they are vital to understanding land use practices connected to specific locations. This is one area where language revitalization can be an important aspect of land stewardship, particularly through place names revival and reclamation (SCHREYER ET AL. 2014). For example, the name Wéinaa Áak'w tells us a lot about the place it points to. Wéinaa Áak'w means "small alkali lake" in Tlingit, which refers to a small lake that is slightly warmer than Áa Tlein ("big lake" or *Atlin Lake*, where the town of Atlin gets its name). The animals come to Wéinaa Áak'w and use the rocks there as a salt lick. So while the English settler name, *Como Lake*, tells us nothing about the lake itself, Wéinaa Áak'w tells us what the lake is like and what to expect there. This is the kind of information that can help the Land Guardians in their work.

Another example of a Tlingit place name that describes the landscape is Gíwé Tliyaadéin K'wálx, which we believe means "there may be fiddlehead ferns here." This name is not yet on the GeoLive map, but it was shared in an oral history recording that was transcribed through the Oral Histories Project (discussed by Christine Schreyer and Tamis Cochrane in their presentation at ICOS 2024). My work on the Oral Histories Project has involved transcribing place names recordings and parsing the transcribed names through morpho-semantic analysis. The information about place names that we are finding in the oral history recordings will eventually be added to both the GeoLive map and the Tlingit Language and Land App. While we do not yet know exactly where Gíwé Tliyaadéin K'wálx is located, this kind of information could be incredibly valuable for land stewardship, particularly for the Land Guardians, who monitor land use and changes in the landscape. The name tells us that at least at the time of the recording, fiddlehead ferns, an edible species of fern which many Tlingit continue to use as food (NATIONAL PARK SERVICE 2021), were known to grow in this specific area. This could still be true, fiddlehead ferns may still be found in this area, or it could show us how the area has changed since the recording was made. Once the site is located, the Land Guardians will be able to use this information to assess how the land may have changed and monitor land use moving forward.

6. Conclusion

Place names can tell us about not only what the land looks like, in terms of its physical features, but also about the significance of particular places, in terms of historical events, navigation, and land-use practices. Because language and land are deeply interconnected, place names reclamation and language revitalization can be important aspects of land stewardship. As this paper demonstrates, digital tools like the Tlingit Language and Land App can be leveraged in ways that support land stewardship initiatives, and can help to strengthen relationships with the land through place names reclamation. The Tlingit Language and Land App will serve as a resource for community members both to learn about known place names and to document names that have not yet been recorded. The app will also enable language learners to engage with language on the landscape digitally, from wherever they are in the world – with or without an internet connection. This paper is a preliminary report of the app and this community-engaged research project; subsequent papers related to this project will describe the development of the app in more detail, including data and results from the testing and feedback process.

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