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Sami place names and maps: transmitting knowledge of a cultural landscape in contemporary contexts

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A B S T R A C T

For the Sami people, place names provide the basis for the transmission of a cultural landscape, through an oral way of mapping built around narratives and the designation of specific landmarks. Based on interviews with members of a mountain-based reindeer herding community in Sweden, we found that their transmission is today ensured through continued oral tradition but also by the increasing use of maps. However, because they follow the western cartographic tradition, official maps are unable to express the continual renewal of Sami place names and the land features that are meaningful to the Sami, and thus fail to convey toponymic knowledge. Inscribing place names on maps transforms them into mere labels: toponymic knowledge has to be transmitted along with its context of emergence, situated at the crossroads of cognitive, perceptive, emotional, and social dimensions. There is an urgent need to conceive new forms of cartography that can guarantee the transmission of toponymic knowledge to future generations, maintaining the relationship that binds the Sami to their environment.

INTRODUCTION

Recently, disciplines such as ecology, archaeology, and geography have seized place names as witnesses of societal, environmental, and even ongoing climatic change, because they constitute historical landmarks and records (Huntington and Fox, 2005; Henshaw, 2006; Conedera et al., 2007). Some anthropologists, such as Boas as early as the 1880s (Müller-Wille and Weber, 1983) and Basso (1988) one century later, had already considered them to be portals to a society's culture, history, use, and perception of the environment. Place names are far more than mere labels identifying a certain point in space; beyond their primary meaning, they carry facts (Rundstrom, 1995; Ingold, 2000). They reveal a “hidden landscape” (Nuttall, 1992), or a “cultural landscape” using the concept as adopted by UNESCO (Roué et al., 2011). Although this is the case for place names in general, this study focuses on indigenous place names, specifically

place names given by the Sami, the indigenous people of northern Fennoscandia. Indigenous place names can be differentiated from place names originating from the western culture, because they are forged into specific ontologies and express the indigenous ways of interacting with the landscape. In the seminal *Maps and Dreams*, Brody (1981) compared indigenous place names with western cartography based on the map as a representation of space in a written format, addressing the question of multiple cartographic ontologies. Recognizing the existence of indigenous cartographies, Wood (1993) and Ingold (2000) went further and established a distinction between mapping and mapmaking. Mapping, like speaking, is a universal process, shared by all societies, whereas mapmaking, like writing, is a specific expression of mapping characteristic of societies with a writing culture. Indigenous place names provide the basis of mental and cognitive maps through which cultural landscapes are expressed.

For the Sami, the recognition of indigenous place names and their publication on maps has been, and still is, an issue for the recognition of their identity and culture (Dehlin, 2009). The political power of place names has been widely recognized (Hunn, 1996; Harley, 2001; Müller-Wille, 2004), notably the role they have played in colonial contexts. The strategy of European states to establish their ownership of the lands has included controlling indigenous place names through their deformation, translation, or eradication on maps, with mapmaking seen as a token of truth and objectivity (Crampton and Krygier, 2006; Helander, 2014). Harley (2001) refers to “toponymic colonialism” in this respect. In Sweden, even though a policy of systematically erasing any trace of Sami place names has never existed, the Swedish influence is nonetheless obvious in the official toponymy used since the first ordnance maps of northern Sweden at the end of the 19th century (Dehlin, 2009; Swedell, 2008). The progressive domination by a Swedish-speaking population over the last centuries has led to the replacement of many Sami names, but also to hybridization, revealing a relationship involving both conflict and cross-cultural exchange (see Brattland and Nilsen, 2011, for a Norwegian example). Moreover, the policies implemented to standardize the Sami names to fit the Swedish orthography and pronunciation have led to the distortion of the Sami names on official maps. Since the 1970s, following the United Nations’ recommendations regarding indigenous place name normalization, and under pressure from Sami institutions, the rehabilitation of indigenous place names on maps has been undertaken in Sweden (Dehlin and Swedell, 2005).

Place names are of cultural and political importance for Sami people, and indigenous people in general, and today their preservation is achieved partly through written cartography. However, writing indigenous place names on maps raises broader issues of mapping and

knowledge transmission within societies that are bound by oral tradition and affected by rapid changes in land use. This research sought to understand the role of place names and maps in a Sami reindeer herding community in northern Sweden today—that is, the current place of oral and written means of learning and representing the environment within the Sami knowledge system.

METHODS

Study Area

This article is based on fieldwork carried out in the area of Jokkmokk, northern Sweden, during 2015, and mainly focuses on the land of the Sami reindeer herding community of Sirges, one of the 51 Sami communities in Sweden (Fig. 1). The area of Jokkmokk is included in the Lule Sami linguistic area, which is the language used for all place names on maps of the region. However, North Sami speakers are also present in Jokkmokk area, since the forced displacement of Sami people from the Karesuando region in the beginning of the 20th century (Manker, 1944). Hence, although they do not appear on the official maps, some North Sami toponyms are still used in Jokkmokk area.

Interview Methodology

Semistructured interviews were carried out from April to September 2015, with 18 interviewees, mainly members of the Sirges community, aged between 17 and 94 years old, comprising 6 women and 12 men; 14 of them were Lule Sami speakers, and four were North Sami speakers. All the men interviewed were reindeer herders, the youngest being apprentice herders. The women were not involved full time in reindeer herding and had other jobs within the community. However,

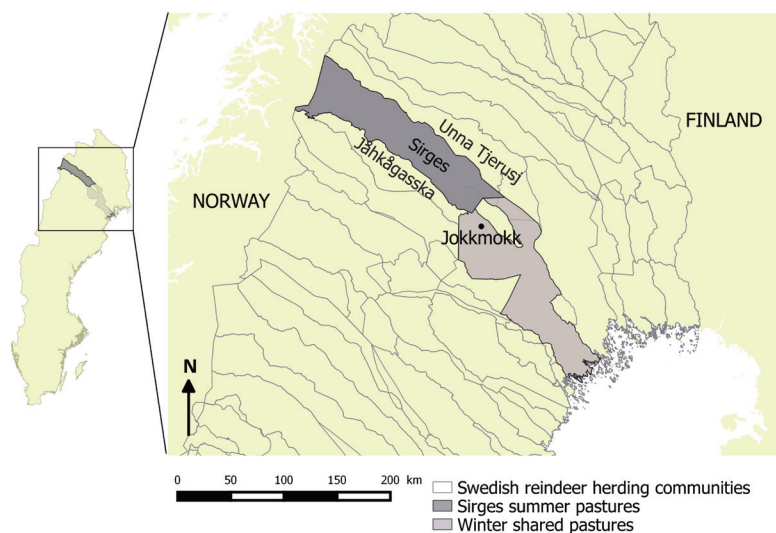


FIGURE 1. Location of the study area. The reindeer herding community of Sirges (67°00'N, 17°10'E) is highlighted in gray (summer pastures in dark gray and winter pastures in light gray). The neighboring herding communities are also identified.

they participated in the key activities of the reindeer herding calendar, and often spent the whole summer in the mountains with their families and the reindeer. Additionally, some interviews were carried out with “experts” regarding place names, namely the Lule Sami consultant at the Sami Parliament and an investigator in the place names section at the Swedish National Land Survey.

During the interviews with the members of the herding community, maps covering the mountain herding lands were taken as a starting point to discuss issues of knowledge about place names, and the role they play in herders’ daily use of the environment. The maps used were published by the National Land Survey, at a 1: 100,000 scale (BD9 “Padjelanta-Sulitelma” February 2009, BD10 “Sareks Nationalpark” and “BD11 Tjåmotis” November 2012).

The interviews were carried out in English and Swedish. When interviewees used Sami words, or when they mentioned place names that did not appear on any map, they were asked to spell them. Lule Sami and North Sami words follow the spelling of Korhonen (2006) and Svonni (2013), respectively. All the interviews were recorded and fully transcribed.

RESULTS AND DISCUSSION

Place Names in Sami Mapping

“In the past, the name was the map”

The Sami traditionally did not use maps to orientate themselves, nor did they ever produce their own maps. Even today, maps are rarely used by the Sami when they travel across their lands, as is the case for other arctic and subarctic people (Aporta and Higgs, 2005). They have developed their own way of navigating and traversing the land:

*We found [our way] better without maps! [laughter]
We didn’t need any. What will you do with a map
when you have the ponds, and the sunlight? And
the rivers.... The brooks flow from west to east. And
the trees thrive towards the sun. [a woman, Sirges
community]*

The Sami have indeed their own way of mapping, using narratives built around place names. As many interviewees stressed, narratives, or storytelling, and particularly the accounts of journeys, play a major role in the discourse of everyday life. When speaking about the places they have traveled to or will travel to, the Sami use a mental representation of mapping, place names being at the core of this noninscribed, or “performative,” map-

ping (Rundstrom, 1995; Ingold, 2000; Turnbull, 2007). As one interviewee expressed it, *“in the past, the name was the map”* (a woman, Jåhkågasska community). This Sami mapping through recounting the journey is built around named landmarks, often linked to the possibilities they offer for reindeer herding, which the narrator has to reveal through the discourse in order to communicate meaningful information—for example, where the reindeer have migrated to and which path they have followed. Mazzullo and Ingold (2008) also pointed out that place names are not recalled as an isolated location.

Named landmarks are very specific locations, belonging to what one herder called the *“micro-perspective,”* such as hills, notable configurations of the terrain, and even stones (Fig. 2), bushes, trees, and the distinctive leaves on some kinds of trees, which can be used to recognize places to cross a wetland. As elders recounted, these landmarks, such as stones marking a path, could bear names. In the context of the Sami animist religion and worldview, stones are part of the living world, on the same level as animals, plants, human beings, and divinities. Some are invested with a spiritual meaning, such as places called *siejdde* (Lule Sami), and used to invoke spirits during offering rituals (Mulk and Bayliss-Smith, 2007). Rock formations or boulders are often distinguished as sacred sites (Vorren, 1987; Roué, 2015).

Place names are not only “narrated maps,” they constitute “mental maps,” drawing a cultural landscape by telling a story within the series they form together. One interviewee identified a system of names linked by the meaning they would create once put together, building a map, or trail, for himself:

In Suorvvá [meaning the space where you can sit at the back of the sled], there is this formation



FIGURE 2. Stone cairn marking an old path leading to the slaughtering place of Boarek. Photograph by John Kuhmunen, 1999. Sirges community (Source: Åjtte, Svenskt Fjäll- och Samemuseum).

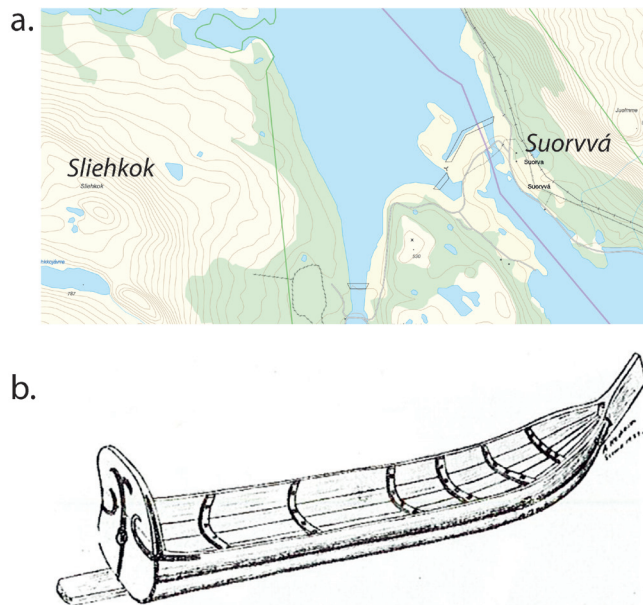


FIGURE 3. (a) Location within the Sirges community of Suorvvá (N: 7493360; E: 637201), meaning the place where you can sit at the back of the sled, and Sliehkko (N: 7493008; E: 637201) (same word as *sliehkko*), meaning the back, or stern, of the sled (©Lantmäteriet). (b) Typical Sami sled (Nielsen and Nesheim, 1979). Note: here the toponymy might have been linked to the topography, but the valley has been dammed since 1923.

that looks like a sled. And sliehkko it is the back of the sled [Fig. 3, part a]. And it is in Suorvvá, you have a mountain south-west of Suorvvá, [called] Sliehkko, and if you put them together, you have something [Fig. 3, part b]. [a reindeer herder, Lule Sami speaker, Unna Tjerusj community]

The same herder identified another place name system based on names referring to the bear, a sacred animal for the Sami. These associations of place names are often linked to a physical resemblance between the features of the landscape and the objects designated by the names. They can also be connected to narratives that can explain these specific land features. The reflection of myths or stories in place names is found in many indigenous cultures. In an example from Canada's Northwest Territories, significant parts of a foundational Dene story about the hunting of giant beavers are reflected in the names of landmarks (Parlee et al., 2001). Jett (2011:327), who studied Navajos' geographical knowledge, talked about "mnemonic guides" formed by associations of place names recounting mythological characters' itineraries and stories. Such mental maps could then facilitate recall of the charac-

teristics of the landscape, or facilitate communication around place names. They can also carry the memory of sacred sites inscribed in the ancient Sami animist religion, repressed by the Swedish Church since the 17th century, where all elements of the landscape are animated (Bergman et al., 2008).

Orality and the Process of Knowledge Transmission

The learning process of place names between generations is inseparable from the oral mapping by narrative. When the oldest of our interviewees explained how they had learned the names of the places they knew, they told how they had followed older relatives during the reindeer migrations since childhood, and how the names of the places were taught on the way. This echoes how Ingold (1993) describes the process of learning for native inhabitants, as their mentors point out specific features of the land along the way. It is also through everyday narrative and discourse that place names are passed on, and with them the "hidden landscape" attached to the places they designate. For example, elders or parents would tell about the time "*when they were moving with the raido* [Sami word for a column of pack reindeer during the migration]" (a reindeer herder, Sirges community). By observing and listening to the more experienced traveler, but also through his/her own experience, the apprentice traveler develops an intimate relationship with the land and learns the names of significant places he/she encounters: the places where the reindeer go, where to fish, or where to find moose and bears. Thanks to the constant use of these place names, essential for communication in such wide territories, they are learned and remembered, providing the native inhabitant "*a GPS in there*" as one herder said, pointing to his head.

This oral transmission must be related to the wider concept of *bagádit* (Lule Sami), to "instruct" the "*old ways*" of learning according to one herder. For him, this is a way of learning based on personal trial and error, but also of being taught by someone more experienced. Others described it as a verb meaning to explain a process, step by step, like explaining a recipe without a book. It can be used to explain a path to someone, as the narrator re-enacts an itinerary, revealing a series of landmarks that the listener would have to follow:

You're like traveling there, trying to get the person you 'bagadallat' [frequentative form of bagádit] to get what he's going to see, what he's going to feel, and then make a path for him, to go and get there. [a reindeer herder, North Sami speaker, Sirges community]

An experienced Sami traveler would give structured guidance to a young apprentice traveler, transmitting a way to travel efficiently:

If you're leaving, and your aim is to get there, you start going up to the tree limit, when you reach the tree limit you follow the river, until you reach a skâi-di [piece of land at the junction of two waterways], and then you go, for example, over the first brook but not over the other, and walk until you reach that lake, and you're going to cross to go over the next mountain, on your left side ... [a reindeer herder, North Sami speaker, Sirges community]

The same approach involving elders and apprentice travelers has been observed among other indigenous peoples, notably the Cree Indians in Canada (Rou  , 2006) and the Inuit (Aporta and Higgs, 2005).

Following the introduction of modern means of transportation, which occurred in the 1960s in the circumpolar Arctic (M  ller-Wille and Pelto, 1971; Delaporte and Rou  , 1987), the traditional *rajd*, with families traveling with sledges and skis, has been abandoned. Traveling has become a much more individual experience, breaking the transmission of knowledge while moving through the landscape. However, in certain circumstances, place names can still be learned and remembered from childhood through the old ways:

And I can see when my husband is walking and the girls are following him, it is the same way. He is talking, telling them about mountains, water, river, old places, where people had lived, and places which are holy for us. [a woman, J  hk  gasska community]

The Transmission of Place Names through Maps in a Modern World

Even if the use of maps during travel is still marginal among Sami herders, and if some of the learning is still based on the "old ways" with the elders, younger generations are now using maps to learn and remember place names. According to one herder, the map provides an opportunity to see the "big overview" of the land, but to be complete, learning still has to involve practical experience and transmission of knowledge from experienced relatives. While he initially claimed that herders never use maps, he realized that they could use them in specific situations, notably when they are discussing and working together in the winter grazing areas, which are less familiar territories because herders have to change location every year to prevent the reindeer from overgrazing the lichen. Another herder, after stating that he

did not use maps, explained how he had in fact been using them with his children:

I don't use maps. However, when my children were small, then we used to sit with this exact same map. So I used to take a magnifying glass, and it was so that my wife could show the children where I had been, where she thought I was. Then they could say "ah! Daddy is there!" [a reindeer herder, Sirges community]

Relatives, as before, still indicate the places visited, and teach their names, but now through the medium of the map. Hence, the importance of the role played by elders and experienced relatives in the Sami social system is maintained. Using a map provides the occasion to teach place names, but also all the related information essential to someone who wants to travel and use the environment successfully: where the herds gather to graze, or where to find running water in winter in order to survive.

Furthermore, it is not only paper maps that represent a new means of learning place names: in today's digital era, reindeer herders have welcomed technologies such as global positioning systems (GPS), online digital maps, and satellite views. For example, one herder looked at route planner websites to check the spelling of names. Even if paper maps are never used while traveling across the land, use of GPS is widespread. Used to help orientation, notably when weather conditions are bad or during the night in winter, GPS maps influence the way the environment is now understood. As with the introduction of snowmobiles, the GPS, used to remember place names, reinforces the individualization of the learning process. Mapping inevitably becomes less collective through the use of digital information displayed on personal screens, although some interviewees explained how they use it to pass on knowledge to their children:

(...) my husband sometimes, and the girls, they use GPS, my husband wants to point, in his GPS, he's telling about some places, he points, so the girls know: "ah, here it's something to know." [a woman, J  hk  gasska community]

Current generations are learning about places, including their names, through a combination of "the old ways" and through the intermediary of the map (paper and digital)—that is, written sources.

The potential of using maps as a new learning medium, and having the Sami names written down, is of particular importance because, as some interviewees pointed out, toponymic knowledge is disappearing. They felt

that the storytelling tradition was weakening, and feared that not only were names being forgotten, but also the stories accompanying them. This phenomenon is all the more feared because most of the Sami names bound to oral tradition are not published on maps. Place names designating microscale features of the land, such as hills or rocks, are most at risk of disappearing, because the larger scale of travel using snowmobiles and motorcycles has made the use of such landmarks obsolete.

This is why some interviewees try to put older names onto maps and stress the need for all of them to be written down, considering the incorporation of place names on maps to be a guarantee of preserving their cultural patrimony. One interviewee considered that part of their responsibility as “knowledge brokers” to the future generations was to make sure Sami place names were put on maps.

However, even if the loss of place names can be counteracted by their publication on maps, the knowledge related to them is not necessarily guaranteed. New questions arise about the consequences of the transition from the oral Sami mapping to a written one for the learning and preservation of place names.

Western Maps, an Adapted Medium for the Transmission of Place Names?

The Conflicting Cultures of Western and Indigenous Mapping of Place Names

Western maps are conceived according to specific objectives consistent with how they are intended to be used by a broad public, and to principles arising from a subjective vision of the land and the environment, such as the scale, the projection, topographic categories, etc., and of course place names. This vision is inherited from the Greco-Roman cartographic tradition, which introduced a disembodied point of view, and evolved toward maps being more and more detached in appearance from their cultural background, giving an impression of objectivity (Jacob, 1996).

Maps published by the Swedish National Land Survey are targeted for specific recipients or customers—that is, outsiders such as tourists. Maps are not made with the intention of integrating the representation of local inhabitants, nor to fulfil the role the latter could expect from them. Even if maps can appear as a way of preserving place names, because they are fixed in a written format somewhat like an archive, in practice they are not conceived with the aim of preserving historical names. As the investigator in the place name section at the National Land Survey explained:

When we produce maps, we produce and present the names that are used. If the names are not used, they

could be of course presented on a type of a historical map. But we see all maps like a newspaper, which should present the names and other objects that are current for the day.

Such a conception of the role played by toponyms on maps conflicts with the expectations of those who seek to conserve the cultural heritage carried by Sami place names.

Moreover, this patrimony represents a multitude of names, testimony to the intimate relationship with, and detailed knowledge of, the land. Among all the names stored in the records of the state institutions, “the conceivers of the map take what they [emphasized by the interviewee] think are the most important names” (Lule Sami consultant), according to their own criteria. Thus the names already inventoried in databases are too numerous to be written on maps, and their continual renewal by the people who inhabit and use the land makes it practically impossible for mapmakers to integrate them all. Indeed, newly created names can arise from personal stories, sometimes amusing:

(...) they named a small hill Piklesbacke, where they.... They were spotting moose from there, and it's known, it's known by all the people who ever go there, they know the name Piklesbacke. And the name is from ... there is a tube which you can, like a tube of paste that you can have on a sandwich, it's called Pikles [from English “pickle”]. And they had no coffee pan, so they made coffee in the Pikles tube. I mean, my point is, you have those small [names], but some of the names have grown beyond, not just me and my uncles, but spread, and gone further. And that's not a specific place, or it's not like a remarkable place, it's just a hill. Just a spot where you can see that someone has made a fire here before. [a reindeer herder, Sirges community]

Although newly created names can become known and used among a group of people linked to the place, their chance of ending up in the mapmakers' records is small, even if the process of recording place names is being undertaken in an area.

Moreover, place names often operate at the micro-scale, as with many significant landmarks in the Sami landscape. One interviewee provided a glimpse of the land features that are relevant to the Sami traveler, and which would have to be represented on a map:

You would see (...) brooks, if you have a brook with a steep, steep hills on each side, which you will stop against, or which you don't get easily over, that's a

landmark you can't see on a map. Significant rocks, wetlands, that you can't get across, wetlands that you can get across, where a river starts to flow from a lake, where a river comes out in a lake, where you have shallow waters in rivers, where it's wide, it's shallow where it's wide. So we have those, they have a specific Sami name [gáláhat], and they're called, like, in English "the place that you can walk over the river," that's a specific word, and each river has a few of those points. (...) And more, like, those small flats where you come, when you're walking in a hilly place, and there's suddenly a flat place, those you can't see, it's hard to see it on a map. But when you come there, it's obvious that you are in the flat. So, those small things, and they just need to be a few hundred meters wide or... What is much used is where small brooks go together, skáidi. Where you have white waters in rivers, where you have those luoppal, when a brook comes down and suddenly it becomes a small lake, a hundred meters, two hundred meters. [a reindeer herder, North Sami speaker, Sirges community]

Names designating such features fall out of the spectrum of representation on conventional maps. Place names designate sections of the land that are meaningful in the worldview of the people who live in it and travel across it, but on a map, it is the view of the mapmakers, with their own criteria, norms, and representation of the environment, that is dominant. For these reasons, western maps fail to preserve and convey many names and associated landmarks, and beyond the names themselves, the knowledge behind the names is not transmitted either.

Western Maps Transform Place Names into Mere Labels

The difficulty in conveying the knowledge place names embody is inherent in the very process of writing them on a map. The transmission of toponymic knowledge has to be experienced and embedded within its cultural context in order to be fully achieved, and maps alone cannot replace practice, nor convey this context. For Rundstrom (1991, 1995, 1998), indigenous knowledge belongs to what he calls incorporating cultures, which he compares to inscribing cultures, like the western culture. Writing down Sami place names on maps implies translation of the Sami way of mapping, which is an incorporative process, to an inscribed form. By this operation, toponymic knowledge is uprooted from its social context and spiritual dimension, and inevitably is altered. As one herder said, western maps can only fail to render visible all the dimensions linked to place names, the facts related to them, and only transform them into mere labels. As Johnson et al. (2006) expressed it, place

names themselves become the victims of their inscription. For example, place name sequences forming mental maps only make sense if they are related to the Sami worldview. On a map, the context binding those names in a sequence is dislocated, transforming those associations that made sense in the animist universe into a palimpsest where only an isolated word remains.

It is through the Sami way of learning and mapping by narrative, transmitted by the process of *bagádit*, that the cultural context of place names is conveyed, allowing the narrator to provide meaningful information about the specific places the traveler will come to on the journey. This process is essential for the transmission and preservation of the knowledge linking the people to their environment, and cannot be replaced by following an itinerary on written maps alone.

For one of the herders, the very principle of writing all the names on maps should be questioned. For him, maps should remain an overview offering the outsider just a fraction of Sami place names, which are learned and known through a life of experience and effort:

Everything is not supposed to be written, some kind of knowledge is, I think, should be separated for those who ... like a gratification for those who travel there (...). It's like a treasure for those who live there. And to hopefully pass the information further. To the further generations. Because you don't get to know those places if you don't.... You can't learn them on a map.
[a reindeer herder, Sirges community]

Toponymic knowledge remains meaningful only if it is transmitted with its context of emergence, situated at the crossroads of cognitive, perceptive, emotional, and social dimensions.

CONCLUSION

For the Sami people, place names provide the basis of an oral mapping, embedded in narrative and storytelling. They designate very specific landmarks that reindeer herders use to convey meaningful information about places and explain routes and itineraries. Place names are an integral part of the environmental knowledge used by local inhabitants, allowing them to develop an intimate relationship with their land. Today paper and digital maps are increasingly being used for the transmission of toponymic knowledge. In this context, the issue of writing Sami place names on maps has become critical.

Western cartographic tradition has not evolved to pass on toponymic knowledge. Embedded in an oral culture, indigenous place names make sense only if bound to the

cultural and social context in which they were created and used. The very culture of inscription carries its own norms and codes, and the knowledge associated with place names once inscribed cannot remain whole and unaltered. Western maps, which are culturally grounded tools, have widely spread to other cultures, and therefore hinder the full transmission of Sami toponymic knowledge since they are, for now, the only media available for diffusing it. Questions remain. If maps become an alternative means of preserving, learning, and passing on place names, how can they better represent them without causing misrepresentation? How can the undeniable power of maps be used without undesirable side effects?

Following the movement of “counter-mapping” engaged by indigenous peoples of Canada in the 1960s, some authors have undertaken to think of new ways of inscribed mapping that can bind the western scientific tradition of mapping to indigenous ontologies (Turnbull, 2007), arguing for a decolonization of cartographic traditions (Smith, 2002; Johnson et al., 2006; Hirt, 2012). The rise and democratization of digital tools offer new possibilities for achieving this objective. For example, some initiatives incorporate narratives into online interactive maps, as a means of reconciling incorporative and inscribing traditions (Henshaw, 2006). In the Sami area, some projects are including such approaches. For example, in Norway the smartphone application iSikte and its adaptation to Sami, studied by Cocq (2015), displays an “augmented reality,” showing the landscape with the possibility to add text, and thus place names. However, such media still emanate from a western conception and fail to convey the Sami way of seeing the land. Thus, some indigenous scholars have tried to integrate land features that are meaningful in the worldview of the local inhabitants, giving birth to new representations of space (see Pearce and Louis, 2008).

Undertaking a similar task for Sami land and place names could represent a viable means of ensuring the preservation and transmission of these names and of the knowledge attached to them in a way that will not corrupt their integrity, and integrate the dimensions conveyed, until now, only through narrative processes. If this is to be achieved, the Sami themselves will have to lead the way, or be engaged in a collaborative approach based on an effective and genuine co-construction of knowledge, in order to avoid mistranslations, alterations, and the domination of western scientific criteria.

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