Traditional reindeer rangeland management and a (human) rights-based approach to food sovereignty

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Published in:
Food Security in the High North

DOI:
10.4324/9781003057758

Published: 01.01.2020

Document Version
Publisher's PDF, also known as Version of record

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Introduction

Rangeland conditions and shrinking operational space in Finland

The reduction in extent of viable reindeer pastures is creating challenges and constraints (see Forbes 2006; Kitti et al. 2006; Magga et al. 2009; Johnsen 2014; Kumpula et al. 2014) to food sovereignty all over Sapmi. For Finnish reindeer herders, the situation is especially severe. In Finland, the extent and productivity of lichen-dominated winter pastures in particular have decreased and, since World War II, lichen cover has decreased in fell areas ('Avoimuutta poropuheisiin' 2016), where reindeer herding is an important source of livelihood for the Sami. Such of reindeer pastures could jeopardise the ability of the Sami to practice traditional reindeer herding and produce reindeer meat in traditional ways. A combination of factors affect the quality and quantity of pasture vegetation, including trampling of lichens during the snow-free season, climate change, altered or degraded pasture lands (Forbes 2006; Kumpula et al. 2014), regulatory challenges (Kitti et al. 2006; Magga et al. 2009), other uses of the land, and increased human activities with numerous economic interest (Pape and Löffler 2012; Kumpula et al. 2014; Saamelaiskäräjät 2016). The situation has led to a heated public discussion.

In this discussion, reindeer herding itself is often presented as the greatest threat to nature in the fell areas of Finnish Lapland (Ruukki 2016; Järvinen 2017a, 2017c). Sami reindeer herders are accused of damaging the pastures – destroying biodiversity, including rare plants (Kivipelto 2016; Mainio 2016; Valikainen 2017; Järvinen 2017c, 2018a, 2018b; Kyrölahti 2019; 'Naali ei ole ainoa uhattu' 2019), increasing erosion (Ruukki 2016), and negatively impacting ecosystems (Valikainen 2017; Järvinen 2017a) – by herding reindeer in Sami herding areas. According to the public discourse, the problem is 'overgrazing' ('Avoimuutta poropuheisiin' 2016). Sami herders are held responsible because they have grown their herds and exposed the plants to intensive, long-term grazing, and associated trampling. As a result, available pastures cannot provide enough winter fodder for the animals because the lichens do not have enough time to regenerate (Järvinen 2017a). Supplementary feeding is now needed in winter to keep the reindeer alive (Mainio 2016); this allows herders to further increase herd sizes ('Avoimuutta poropuheisiin' 2016; Ruukki 2016; Vehmas 2016b). Thus, the media-driven discourse characterises this form of livelihood as 'intensive livestock farming' (Ruukki 2016; Vehmas 2016b), which is ethically, economically, and ecologically unsustainable (Ruukki 2016; Järvinen 2017b). Reindeer are 'killing the unique nature in the fell areas' (Vehmas 2016b) and reindeer herders are 'committing an environmental crime' (Valikainen 2017).

While these public discussions have created a narrative focused on the 'overgrazing' of ground lichen, the strongly negative tone of the public discourse to date has been driven by non-experts in rangeland ecology and management. More balanced scientific analyses have been published over the past decade or so (Forbes 2006; Helle and Jaakkola 2008; Forbes and Kumpula 2009; Forbes 2010; Kumpula et al. 2014). According to these scientific overviews of Finnish reindeer rangelands and the increase in supplemental feeding, the underlying causes are far more complex and nuanced than portrayed in the media.

The narrative regarding 'overgrazing' becomes problematic when it disseminates misleading information about the reasons underlying its narrow focus on the decline of formerly lichen-dominated winter rangelands. The public discussions comparing the conditions of lichen pastures in the Finnish–Norwegian border zone provide a perfect example of such an oversimplified narrative. Several newspapers have published articles and opinion pieces about oversized reindeer herds demolishing the lichen on the Finnish side, supporting these claims with images of the lichen pastures around the border (Ruukki 2016; Järvinen 2017a). Yet rangeland researchers do not deny the fact that declining pasture conditions are a significant problem in the fell areas (Forbes 2006; Vehmas 2016b; 'Lapin luonto tuhoutuu poronhoidon vuoksi väittää tietokirjailija' 2018). There are clearly visible differences in the amount of ground lichen in Enontekiö (Finland) and Kautokeino (Norway), but the number of reindeer is approximately the same (2.5–3.5 reindeer per square mile on both sides of the border) (Oksanen et al. 2016). Therefore, the size and density of the respective herds do not fully explain the quality and quantity of Finnish fell lichen pastures (Oksanen et al. 2016). However, there are significant differences in seasonal grazing and, especially, summer trampling pressure on the Norwegian and Finnish sides of the border (Kumpula 2006, 172). The lichen in Finland has decreased since the 1970s because the reindeer 'double graze' the same pastures throughout the year (Forbes 2006, 19). The reindeer consume ground lichens from beneath the snow cover in winter and trample the dry lichen in summer (Forbes 2006, 19; Helle and Jaakkola 2008; Lavia 2016; Oksanen et al. 2016; Vehmas 2016b). In Norway, reindeer are managed differently and only have access to the lichen rangelands near the border during the winter. In Norway, Sami herders have continued to practice traditional herding migration – reindeer are herded from coastal summer pastures to inland winter pastures near the Finnish border (Kumpula 2006, 167; Lavia 2016; Oksanen et al. 2016; Vehmas 2016b).

The reasons for declining ground lichen include the unavailability of seasonably appropriate grazing areas, the continuing loss of pasture to a variety of land uses, and hotter, drier summers during which lichens cannot photosynthesize (Kumpula et al. 2014). Reindeer management in Finland has experienced significant changes in the past five decades (Kumpula 2006, 167; Helle and Jaakkola 2008; Kumpula et al. 2014). In the past, the Sami practiced nomadic reindeer herding in large, connected, undisturbed grazing areas. Finnish Sami reindeer migrated all the way to the Arctic Ocean and back to Finland (Kumpula 2006, 167). The creation of nation-states – Norway, Sweden, Finland, and Russia – and closed borders in the 1950s put an end to nomadic herding. Reindeer herders could no longer practice long-distance migrations like those used in the reindeer herding areas of Sweden and Norway (Salvesen 1995, 110–111; Kumpula 2006, 167; Forbes and Kumpula 2009; Reinert et al. 2009, 19–21; Forbes 2010; Vehmas 2016a). Over time, factors such as competing land use, reindeer management policies, and regulatory challenges reduced and fragmented the grazing areas even further, forcing reindeer herders to practice their livelihood in much smaller and more limited areas (Muller-Wille et al. 2006; Forbes 2010; Vehmas 2016a; Miettunen 2017). For example, fences between the reindeer cooperatives restrict reindeer from moving between winter and summer pastures ('Poronhoitajat haluavat saada äänensä kuuluviin alansa päätöksenteossa' 2005; Kumpula 2006, 167; Vehmas 2016a). The ongoing loss of grazing lands since the 1950s has left reindeer herders less capable of using lands and natural resources and practicing their livelihood in a sustainable way. It is against Sami herders' self-interest to exhaust the rangelands upon which their traditional livelihood and culture depend (Vehmas 2016b). Therefore, 'overgrazing' is an overly simplistic explanation for the declining pasture conditions (Sorjanen 2016); the real reason lies in the ever-shrinking operational space for contemporary reindeer rangeland management ('Poronhoitajat haluavat saada äänensä kuuluviin alansa päätöksenteossa' 2005; Kumpula et al. 2014; 'Lapin luonto tuhoutuu poronhoidon vuoksi väittää tietokirjailija' 2018).

Reindeer reduction policies versus traditional pasture management

The government is responsible for Finnish policies on reindeer husbandry. The Natural Resources Institute of Finland (Luke) (see Luonnonvarakeskus) monitors the dynamics of reindeer rangeland by conducting regular inventories of ground and arboreal lichen and of green sources of forage in the reindeer management area. Inventories were conducted in 1995–1996, 2005–2008, and 2017–2019. In the northernmost reindeer cooperatives or districts (20), the inventory comprises taking measurements from 625 specific test sites in the lichen pastures. Thirteen of the northernmost cooperatives are in the Finnish portion of Sapmi (Paliskuntain yhdistys 2014, 9). Based on these pasture inventories (see Kumpula et al. 2019) and other relevant information, the Finnish Ministry of Agriculture and Forestry (Maa- ja metsätalousministeriö) regulates the total reindeer population. The Ministry determines the largest permissible numbers of living reindeer for each district based on the alleged capacity of winter pastures (Luke 2016). In doing so, the Ministry sets parameters that guide reindeer management policy for the next ten years. This has led to a political discussion about whether and how reindeer management policy should evolve in the twenty-first century.

Policies aimed at reindeer population control have long been the main governmental tool wielded to prevent the rangeland degradation perennially attributed to 'overgrazing'. In practice, these policies mean that the Ministry reduces reindeer populations in the northernmost cooperatives, which are in the Finnish parts of Sapmi, and the Sami are ordered to cull their herds. The discourse focused on 'overgrazing' often refers to reindeer reduction policy, and many people openly support mandated slaughter of reindeer to regulate 'carrying capacity' (Mainio 2016; Ruukki 2016; Sorjanen 2016). The public discussion puts pressure on the Ministry to reduce the total number of reindeer.

Reindeer reduction, however, is problematic. The maximum permitted number of reindeer is different for each herding cooperative (Paliskuntain yhdistys 2014, 11, Paliskuntain yhdistys a). For example, in one of the northernmost cooperatives in the Käsivarsi district, the maximum number of reindeer is 10,000 (Paliskuntain yhdistys b). Reindeer herders are then forced to compete for suitable rangeland and respective herd sizes. The government pays reindeer owners with at least 80 reindeer a 'living support' or subsidy (Valtioneuvoston asetus 2019/2020). If a herd is already small and the herder is struggling to gain support and sustain themselves and their family, reducing the number of reindeer can tip the scales, making reindeer herding unprofitable and forcing the herder to give up their traditional livelihood. The Sami argue that reindeer reduction policies could threaten their livelihood and the maintenance of Sami culture and identity. Furthermore, such policies infringe on Indigenous rights. In Norway there has been public discussion about the negative effects of reindeer reduction policies (see Henley 2017; Martyn-Hemphill 2017).

Therefore, Finnish Sami have suggested an alternative reindeer management policy. According to the Sami, reindeer reduction is not the only tool for maintaining viable rangeland conditions, nor the only way to restore lichen-rich pastures. The sustainable solution lies in pasture management and rotational grazing systems based on Indigenous knowledge (Saamelaiskäräjien lausunto 2016). Scholars, the Sami Parliament, and Sami representatives of reindeer husbandry agree that the most effective way to restore the lichen pastures is to revitalise seasonal rotation among pastures (Mainio 2016; Sorjanen 2016). In practice, this means strict separation of winter and summer pastures (Sorjanen 2016). Revitalisation of the rotational grazing system will not be an easy task. It will require appropriate participatory modes of research that combine different ways of knowing about traditional grazing lands, collaborative decision-making process and adjustments to reindeer herding legislation.

To tackle this question, this chapter will look at food sovereignty in the context of reindeer-herding Sami and their struggles related to rangeland conditions and shrinking operation space in Finnish

Lapland. First, it will determine what food sovereignty actually means, especially for Indigenous Peoples. It then examines and discusses how pasture management and rotational grazing systems based on Indigenous knowledge can enhance food sovereignty. Moreover, it examines how (human) rights-based approaches can strengthen food sovereignty. It concludes by providing recommendations to enhance food sovereignty and improve food security in Sami communities.

Food sovereignty

Food sovereignty is a well-discussed topic and a reference point for discourses in the field of food security. It has become an important theoretical concept; it is 'an ever-expanding series of ideas and principles' and the subject of policy frameworks, and it is included in governmental programs. It is also a key driver behind political change in food movements (Grey and Patel 2014, 431–432; see León 2007). It is commonly defined as:

… the Right of peoples, communities, and countries to define their own agricultural, labour, fishing, food and land policies, which are ecologically, socially, economically and culturally appropriate to their unique circumstances. It includes the true right to food and to produce food, which means that all people have the right to safe, nutritious and culturally appropriate food and to food producing resources and the ability to sustain themselves and their societies. (Food sovereignty: A right for all, 2002)

The concept of food sovereignty is related to concepts such as food security and the right to food. Food security – adopted by FAO member states – and food sovereignty consider different aspects of food systems. Food security, which focuses mainly on the supply and availability of food (Food security 2006; Rudolph and McLachlan 2013; Martens et al. 2016, 20), is relatively neutral in terms of power relations (Gordillo and Jerónimo 2013, 7). On the contrary, food sovereignty recognises 'the power inherent in food systems' (Martens et al. 2016, 20). It includes: 'a set of principles that protect the policy space for peoples and countries to define their agricultural and food policies, and their models of production and food consumption patterns' (Windfuhr and Jonsén 2005, 11). Food sovereignty recognises the importance of how food is produced (Windfuhr and Jonsén 2005, 11; Gordillo and Jerónimo 2013, 7) and the asymmetric power relations and structures involved in food production (Gordillo and Jerónimo 2013, 7). It also assesses food-related challenges and threats. In fact, food sovereignty can be seen as a prerequisite for genuine food security (Via Campesina 1996, 1). The right to food, on the other hand, can be used as a tool to achieve food sovereignty. It asserts every individual's right to adequate food (Windfuhr and Jonsén 2005, 11, 17).

The concept of food sovereignty developed among farmers in the 1980s and early 1990s as a reaction to globalization of the economy and agriculture (Wittman et al. 2010, 1; see Glibo and Pascual Jr. 2005). Changes in national and international agricultural policies have led to multiple crises affecting food, such as rural poverty, hunger, and malnutrition (Windfuhr and Jonsén 2005, 1, 3). As an alternative to 'decades of destructive economic policies based on the globalisation of a neoliberal, industrial, capital-intensive and corporate-led model of agriculture,' food sovereignty was introduced to give control over food markets, environments, land, and rural culture back to local communities and the people who produce and consume food (Wittman et al. 2010, 2). Over the years, a global social network of non-governmental organisations (NGOs), civil society organisations (CSOs), social movements, conferences, forums, and declarations have supported the idea of food sovereignty and contributed to the development of the food sovereignty policy framework (Windfuhr and Jonsén 2005, xi, 1, 11; see Anderson 2018).

Food sovereignty includes six basic principles – the six pillars of food sovereignty. They were drafted during the World Food Summit (WFS) in 1996 by transnational agrarian movement, La Vía Campesina, and further developed at the 2007 Nyéléni Forum for Food Sovereignty (see Mali 2007). According to these pillars, food sovereignty (1) focuses on food for people, (2) values food providers, (3) localises food systems, (4) places control at the local level, (5) promotes knowledge and skills, such as Indigenous knowledge, and (6) works with and protects nature (Gordillo and Jerónimo 2013, 3–4).

Food sovereignty and Indigenous Peoples

Indigenous Peoples are part of this food movement and have been instrumental in putting food sovereignty at the centre of policies on food production, agriculture, and rural development (Wittman et al. 2010, 2). In fact, food sovereignty is closely connected to Indigenous movements and the advancement of Indigenous Peoples' rights (Shawn 2008; Morrison 2011; Desmarais and Wittman 2014; Grey and Patel 2015) because Indigenous Peoples face more food-related challenges and insecurities than other groups (Ledrou and Gervais, 2005; Kuhnlein and Burlingame 2013, 5; Tarasuk et al. 2014; Martens et al. 2016, 20; First Nations Information Governance Centre, 2012; UN Permanent Forum on Indigenous Issues 2012). For this reason, Indigenous Peoples have developed their own form of food sovereignty (Grey and Pater 2015, 436), Indigenous food sovereignty (IFS), and related movements that address food-related challenges (Martens et al. 2016, see also the Indigenous Food System Network).

The definition of Indigenous Peoples, also known as first peoples, aboriginal peoples and native peoples, varies in different parts of the world. There are no universal criteria defining them as a single group. Rather, Indigenous Peoples have 'the right to define themselves according to their culture' (Kuhnlein et al. 2009, 3; see also Kuokkanen 2019). In the context of food sovereignty, Indigenous Peoples can be referred to as peoples who 'liv[e] in their rural homelands [and] depend on traditional food systems rooted in the historical continuity in their regions, where food is harvested with traditional knowledge from the natural environment, and prepared and served in local cultural settings' (Kuhnlein and Burlingame 2013, 6).

For Indigenous Peoples, food sovereignty is centrally the ability to make their own decisions about their respective food systems (Grey and Patel 2015, 431). It holds that Indigenous Peoples have the inherent right to define their traditional food systems and food-related policies and strategies for sustainable production – that is, that they have control over their traditional food systems (Grey and Patel 2015, 433).

Indigenous Peoples' traditional food systems have certain qualities that affect decisions about those systems. Traditional food systems are 'composed of items from the local, natural environment that are culturally acceptable' (Kuhnlein and Receveur 1996, 418; see Woodley et al. 2009). They are intrinsically connected to traditional lands, waters, and territories, and are based on Indigenous knowledge (Kuhnlein et al. 2009, 3). Indigenous knowledge systems, cultures, and identities are maintained through active participation with traditional lands and food systems (Indigenous Food System Network). Therefore, traditional food systems contribute to the collective health and wellbeing of the individual and the community (Neufeld and Richmond 2017, 94) – 'not only physical but also emotional, mental and spiritual aspects of heath, healing and protection from disease' (Kuhnlein et al. 2009, 3).

For Indigenous Peoples to be able to make their own decisions regarding food systems, traditional food systems must often be revitalised. This is because of the impacts of colonisation on Indigenous

food sovereignty and traditional food systems. Colonial policies and practices have caused 'a drastic decline in the health and integrity of Indigenous cultures, ecosystems, social structures, and knowledge systems', which are integral to the production of healthy Indigenous foods (Indigenous Food System Network). The revitalisation of traditional food systems is connected to a larger Indigenous cultural, social, and political resurgence. In fact, food sovereignty can be seen as 'the continuation of anti-colonial struggles in ostensibly postcolonial context' (Grey and Patel 2015, 433). Furthermore, the revitalisation of Indigenous food systems requires Indigenous knowledge. Yet, all too often, Indigenous food sovereignty is compromised, reducing food security in Indigenous territories. Often the problem lies in Indigenous Peoples' lack of political power to make their own decisions about traditional food systems. Clearly, the challenges related to food sovereignty require policy reforms and need to be addressed with and by Indigenous communities.

Indigenous knowledge-based traditional pasture management as a promoter of food sovereignty

This section examines how Indigenous knowledge-based traditional pasture management can potentially enhance Sami food sovereignty. It focuses on Sami efforts to (re)claim control over their traditional food systems by proposing an alternative policy to reindeer reduction. This alternative involves traditional pasture management and rotational grazing systems. The analysis will relate the current situation of reindeer-herding Sami to the six pillars of food sovereignty (described in the "Food sovereignty" section).

Pillar I: Focusing on food for people

According to the first pillar, food sovereignty 'focuses on food for people.' People have a right to adequate supplies of healthy, culturally appropriate food. This is true for all individuals, peoples, and communities, including those who are marginalised. The aim is to satisfy people's need for food (Sélingué 2007, 76).

Traditional food systems allow Indigenous Peoples to produce and consume healthy, culturally appropriate food, and therefore satisfy their need for food. These food systems rely on subsistence activities and productive resources. Subsistence activities might include reindeer herding, fishing, hunting, and berry picking (Helander 2008). Land, water, and species such as reindeer, fish, game and berries, as well as other natural resources, are productive resources (Windfuhr and Jonsén 2005, 14). For the Sami, traditional reindeer herding is an important subsistence activity, and they have exploited reindeer and lichen pastures located in their traditional lands as productive resources for centuries, if not millennia (Müller-Wille et al. 2006; Forbes and Kumpula 2009).

Food sovereignty 'puts people's need for food at the centre of the policies', including policies affecting food. The Ministry's expected or potential policy of reindeer reduction as a solution to declining pasture conditions causes food insecurity for the Sami because it threatens a subsistence activity – traditional reindeer herding. Traditional reindeer herding was productive in the past thanks to traditional pasture management and a seasonal rotational grazing system (Kumpula 2006, 167). Reapplying these methods to reindeer husbandry and incorporating them in reindeer management policies could secure a subsistence base for the production of heathy, culturally appropriate food through traditional food systems, thereby enhancing food sovereignty.

Pillar II: Valuing food providers

According to the second pillar, food sovereignty 'supports sustainable livelihoods'. This means that food sovereignty supports the contributions of food providers, such as Indigenous Peoples, who practice sustainable livelihoods (Sélingué 2007, 76). It is important that Indigenous food providers can define their own food systems and produce their own food using sustainable, ecologically sound methods – traditional food systems. These systems include the sustainable practice of subsistence activities and the use of productive resources. In Finland the current system does not meet the requirements of ecological reindeer husbandry (Oksanen et al. 2016) because it does not allow enough operational space for seasonal pasture rotation. Practicing reindeer husbandry using traditional pasture management would support the efforts of Sami reindeer herders to keep traditional, sustainable reindeer herding practices alive, and guarantee profitability and the continuity of the traditional livelihood in the future.

Food sovereignty also 'respects the work of all food providers'. It requires rejecting 'those policies, actions, and programmes that undervalue them, threaten their livelihoods and eliminate them' (Sélingué 2007, 76). Indigenous food sovereignty emphasises that Indigenous Peoples' right to food cannot be constrained by colonial laws, policies, or institutions (Indigenous Food System Network). In principle, the Sami Parliament (Saamelaiskäräjät 2016) supports the national government's conservation strategies and policies, but it disagrees with the Finnish government about how lichen pastures should be restored and biodiversity goals implemented. The Parliament rejects the planned reindeer reduction policy because this policy focuses on reindeer herding and ignores other factors that rangeland experts have documented as contributing to the long-term deterioration of pasture conditions (Helle and Jaakkola 2008; Kumpula et al. 2014). The reindeer reduction policy proposed by the government would directly and negatively impact traditional reindeer herding (Saamelaiskäräjät 2016, 3–6). Traditional pasture management offers an alternative to the reindeer reduction policy, which undervalues Sami reindeer herders and threatens their traditional livelihood. Therefore, traditional pasture management enhances food sovereignty.

Pillar III: Localising food systems

According to the third pillar, food sovereignty 'localises food systems.' This involves placing food providers and consumers at the centre of decision-making on food issues (Sélingué 2007, 76). Decisions about policies and rules that govern food are often made at the international, regional, and national level. Food sovereignty means that the decision-making processes should highlight the perceptions and needs of local food providers and consumers and therefore reinforce local food systems (Withfurth and Jonsén 2005). Otherwise, international, regional, and national policies and rules that govern food can form different kinds of structures that delocalise food systems.

Reindeer herders are obliged to follow the policies and rules that apply to reindeer herding in the nation-state where they reside. Finland has many such policies and rules. Since World War II, reindeer herding, designated as an economic enterprise, has been subjected to increasingly strict agricultural norms (Paine 1994; Laakso 2002; Forbes 2006). Since Finland joined the EU in 1995, reindeer husbandry has been considered a form of agriculture and regulated according to industrial livestock standards (Forbes 2006; Saamelaiskäräjät 2016, 3).

The Reindeer Husbandry Act (848/1990) regulates the system based on reindeer herding cooperatives. Finland's reindeer management area is divided into 54 local reindeer herding cooperatives. Every reindeer herder belongs to a cooperative, and each cooperative is responsible for the animals in one specific, limited area (Paliskuntain yhdistys). The boundaries of reindeer herding cooperatives are not based on so called 'siida' system (a.k.a. traditional village system or reindeer herding groups) (see Reinert et al. 2009, 17, 19; Sara 2009). According to the Sami Parliament the Reindeer Husbandry Act (848/1990) does not recognise traditional Sami reindeer herding nor its significance to Sami culture and language (Saamelaiskäräjät 2016, 3). Furthermore, reindeer herders feel that they have no influence over these top-down regulations (Forbes 2006).

Traditional pasture management localises the food system. The Sami Parliament states that policies and rules governing reindeer husbandry should be based on the perceptions and needs of reindeer herders and on Sami culture (Saamelaiskäräjät 2016, 3). In Finland, the state is required to consult the Sami on decisions affecting them (Allard 2018, 31–32, see Finland´s Strategy for the Arctic Region 2013, 22). Section 9 of the Sami Parliament Act (974/1995) states that the authorities must negotiate with the Sami Parliament in all far-reaching and important measures which may directly and specifically affect the status of the Sami as Indigenous People. These consultation rights include policies related to Sami livelihoods (Allard 2018, 31–32). Therefore, the Sami Parliament has demanded that the government engage them in the decision-making process and consider reindeer herders' perceptions and needs in reindeer husbandry policies. This would mean instituting traditional pastures management and rotational grazing systems (Saamelaiskäräjät 2016, 3). Traditional pasture management is a bottom-up approach that places Sami herding culture and the needs of reindeer herders at the centre of the decisions on reindeer management policy; this would enhance Sami food sovereignty.

Pillar IV: Putting control in the hands of local food providers

According to the fourth pillar, food sovereignty 'places control over territory, land, grazing, water, seeds, livestock and fish populations on local food providers' (Sélingué 2007, 76). When Indigenous food providers own, control, and/or have access to territories, lands, and natural resources, they are more able to practice sustainable local food production. Locally controlled, traditional food systems and subsistence activities enable Indigenous Peoples to use, manage, and share territories, lands, and natural resources in environmentally sustainable ways, which conserves biodiversity.

Traditional pasture management places control of grazing lands and reindeer in the hands of local reindeer herders in the Sami homeland. According to Sami reindeer herders, even more important than nutrition is access to good quality pasture lands, characterised by 'grazing peace' (Kitti et al. 2006). However, access to pastures is compromised for several reasons. Competitive land use, infrastructure, the exploitation of natural resources, other human activities, etc. prevent reindeer from accessing traditional grazing areas. These activities are disturbing the peace in many pastures; as a result, these pastures cannot be used for reindeer herding during certain times of the year (see Kumpula et al. 2007, 2014; Anttonen et al. 2011; Hast and Jokinen 2016; Sandström et al. 2016). The Sami Parliament has pointed out that competitive land use etc. has made the traditional rotation between winter and summer pastures increasingly difficult (Saamelaiskäräjät 2016, 6). As a result, Sami herders cannot regulate the use of lichen and other natural resources in those areas. Traditional pasture management returns control over their lands, territories, natural resources, biodiversity, and reindeer back to the Sami reindeer herders, enhancing food sovereignty.

Food sovereignty 'recognises the need to inhabit and share territories.' This means that, although Indigenous territories often cross geopolitical borders, Indigenous Peoples have a right to inhabit and use their traditional lands and territories. This pillar also promotes positive interactions between Indigenous food providers from different regions and territories and from different sectors, preventing conflicts and promoting their resolution when they occur (Sélingué 2007, 76). Traditional pasture management is based on the same principle. It requires large, connected, undisturbed grazing lands and territories; reindeer naturally migrate across these lands. Traditional grazing lands extend well beyond the borders of nation-states and reindeer cooperatives. Traditionally, the North Calotte has been considered a shared pasture area where Sami reindeer herders worked together to govern reindeer herding in Fennoscandia. Reindeer herding in accordance with the siida system is an integral part of traditional Sami pasture management (Reinert et al. 2009, 33; Mazzullo 2010). Reviving rotational grazing systems would require comprehensive long-term planning; such a system could not be limited by reindeer cooperatives (Kumpula et al. 2019). Traditional pasture management recognises the Sami's need to inhabit and share different regions and territories and therefore enhances food sovereignty.

Food sovereignty also 'rejects the privatisation of natural resources' (Sélingué 2007, 76). The long-term plans to preserve and secure the availability of winter pastures often include rejecting the privatisation of these natural resources. For example, it is recommended that plans for land use in the northernmost reindeer cooperatives should spare existing grazing lands, where reindeer can still graze peacefully, and minimise other land use in those areas. Old-growth forests outside nature reserve areas should also be spared in areas that are significant for reindeer herding (Kumpula et al. 2019, 69–70). Therefore, traditional pasture management rejects the privatisation of natural resources and enhances food sovereignty.

Pillar V: Building on Indigenous knowledge and skills

The fifth pillar states that food sovereignty 'builds on traditional knowledge'. This means developing and utilising the skills and local knowledge of Indigenous food providers and establishing local organisations that conserve, develop, and manage localised food production (Sélingué 2007, 76). According to the Sami Parliament, the Finnish government currently does not use Indigenous knowledge effectively in planning and developing reindeer husbandry (Saamelaiskäräjät 2016, 3).

Traditional pasture management and rotational grazing system are based on Indigenous knowledge. This knowledge is required to properly manage different herd sizes within and among different geographic areas and seasonal pastures, which offer widely disparate grazing conditions. Sami reindeer herders use Indigenous knowledge to control the size and composition of herds in proportion to available pasture (Bjorklund 2004, 125–126) and to maintain sustainable levels of grazing. Therefore, the Sami Parliament insists that Sami reindeer herders' knowledge of pasture management – holistic knowledge about the nature and condition of pastures and an understanding of how different factors affect pasture conditions – be used to develop and manage reindeer herding in the northernmost reindeer cooperatives (Saamelaiskäräjät 2016, 3). Basing reindeer husbandry on Sami reindeer herders' knowledge of traditional pasture management will help conserve, develop, and manage local food production through traditional food systems, enhancing food sovereignty.

Food sovereignty also 'uses research to support and pass this knowledge to future generations'. It is essential to develop appropriately linked rangeland research and management systems to support the use of skills and knowledge of Indigenous food providers. This will support localised food production

and pass on Indigenous knowledge to future generations (Sélingué 2007, 76). According to the Sami Parliament, previous state- and university-driven research on pasture conditions, lichen coverage, and sustainable grazing levels has not considered Indigenous knowledge or the views of reindeer herders on the condition of grazing lands (Saamelaiskäräjät 2016, 3).

Previous state- and university-driven research on pasture conditions and lichen coverage has been far too narrow in scope. Bioeconomic assessments of pastures have focused on measuring vegetation – lichen biomass, coverage of ground lichen, and changes in coverage. Studies have identified a 75% decline in lichen coverage and a 60% decrease in lichen biomass in the reindeer pastures of the northernmost Lapland ('Avoimuutta poropuheisiin' 2016). These studies were considered objective and their results reliable measurements of changes in vegetation and pasture conditions. However, while bioeconomic assessments encompass ecological and economic factors, social and cultural factors are still too often ignored in state- and university-driven research. Reindeer herding is part of Sami culture. Reindeer herders' perceptions and observations of pasture 'quality' extend well beyond vegetation characteristics (Kitti et al. 2006; Forbes and Kumpula 2009). The valuable Indigenous knowledge of these practitioners and local researchers needs to be acknowledged and included in future research (Brunet et al. 2014; Riseth 2014). University-affiliated academics who evaluate vegetation changes may lack the in-depth experience and practical knowledge of pasture conditions that Sami herders have. Future research must address issues of reindeer management in the local sociocultural context (Forbes 2006, 16).

Therefore, appropriate participatory modes of research that apply Indigenous knowledge combine different ways of knowing about traditional grazing lands (Forbes 2006; Roturier and Roué 2009; Brunet et al. 2014; Riseth 2014) and contribute to the revival of rotational grazing systems are essential. The next step is recognising Sami herders as researchers and enhancing locally driven and indigenous-led research projects. Recognising and implementing Indigenous knowledge of pasture conditions in scientific research is vital because this will provide a foundation for government planning of reindeer husbandry policy over ten-year periods. If reindeer herders, university-affiliated researchers, and policymakers collaborate and revitalise the rotational grazing system, young generations of herders can learn how to manage pastures according to Sami traditions. Indigenous knowledge will then be passed on to future generations, further enhancing food sovereignty.

Pillar VI: Working with nature

The sixth pillar of food sovereignty calls for optimising the contributions of ecosystems, improving resilience, and rejecting destructive production methods. Food sovereignty uses the 'contributions of nature in diverse, low external input […] ecological production […] methods that maximise the contributions of ecosystem and improve resilience and adaption, especially in the face of climate change' (Sélingué 2007, 76).

The narrative on 'overgrazing' often presents the reindeer themselves as the greatest threat to nature and endangered species in Finnish fell areas (Mainio 2016; Kivipelto 2016; Ruukki 2016; Järvinen 2017a; Valikainen 2017) but disregards the fact that reindeer are a keystone species of fell areas (Soppela et al. 2002). Reindeer can have positive impacts on vegetation and soil and contribute to ecosystem function (Huhta 2016; Käyhkö and Horskotte 2017; Oksanen et al. 2016). Moreover, in traditional pasture management, reindeer herding is based on Indigenous knowledge about the sustainable use of natural resources (Saamelaiskäräjät, 3) and seasonal pasture rotation system allows

plants such as lichen time to regenerate, creating adequate forage resources for reindeer so they no longer need supplementary feeding in fell areas.

Reindeer herding can also mitigate the impact of climate change. Grazing and trampling help prevent tall shrubs and trees from encroaching on tundra fells in a warming climate (Huhta 2016; Oksanen et al. 2016; Saamelaiskäräjät 2016, 4; Sorjanen 2016; Horstkotte et al. 2017). Intensive grazing also slows snow melt, further countering warming trends (Saamelaiskäräjät 2016, 4; Käyhkö and Horstkotte 2017). When reindeer herding is based on traditional pasture management, it is a low external input ecological production method that promotes the contributions of ecosystems and improves resilience and adaption to climate change, and it enhances food sovereignty.

An approach to food sovereignty based on (human) rights-based approach to food sovereignty

This section examines how (human) rights-based approach can strengthen claims to food sovereignty. The efforts of Indigenous Peoples to (re)claim control over their traditional food systems and/or traditional subsistence activities based on Indigenous knowledge are food sovereignty claims. Hence, it is important to recognise that Sami efforts to revitalise and (re)claim control over their traditional pasture management using rotational grazing system is in fact a food sovereignty claim. The right to food, meanwhile, is a legal concept and a human right (Food and Agriculture Organization of the United Nations 2005; Windfurh and Jonsén 2005, 19; Knuth and Vidar 2011) that can be used to enhance food sovereignty. Therefore, this section focuses on a (human) rights-based approach that can strengthen Sami claims to traditional pasture management and food sovereignty, while also promoting food security.

The right to food is protected by several international human rights instruments (Food and Agriculture Organization of the United Nations 2005, 3–7). It is defined by the UN Committee on Economic, Social and Cultural Rights (CESR) (1999) as 'the right of every man, woman, and child alone and in community with others to have physical and economic access at all times to adequate food or means for its procurement in ways consistent with human dignity' (see Windfuhr and Jonsén 2005, 19).

First, the right to food is protected under international law. The right is recognised in Article 25 of the Universal Declaration of Human Rights (1948) and, most importantly, in Article 11 of the International Convention on Economic, Social and Cultural Rights (ICESCR), which recognises two dimensions to the right to food: the right to an adequate standard of living and the fundamental right to be free from hunger (Food and Agriculture Organization of the United Nations 2005, 3–4; Knuth 2009, 12–13). All human beings are entitled to right to food as human right, including individuals of Indigenous populations (Knuth 2009, 14).

Second, the realisation and enjoyment of the right to food depends on the effective realisation of other human rights. Particularly significant to Indigenous Peoples are the right to culture, the rights related to land, territories, resources, and the right to self-determination and right to non-discrimination, without forgetting the category of collective rights (Knuth 2019, 14–19).

Other binding and non-binding international legal instruments directly or indirectly protect Indigenous Peoples' right to food, such as the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) (Food and Agriculture Organization of the United Nations 2008, 1). The UNDRIP identifies key elements of Indigenous Peoples' right to food and the realisation of that right. It delineates the right of Indigenous Peoples: 'to live in dignity, to maintain and strengthen their own institutions, cultures, and traditions,

to pursue their self-determined development', to use land and natural resources and to practice subsistence activities (Food and Agriculture Organization of the United Nations 2008, 1).

The right to food, which is in itself a human right, and other relevant human rights create 'layers of protection' for Indigenous Peoples consisting of individual rights and collective rights (see Knuth 2019, 12–19). Indigenous Peoples' collective rights establish rights of peoples as groups and have additional value in comparison to individual rights because they defend groups´ collective interest. For example, certain rights are held collectively, and cultural traditions, customs and practices, such as subsistence activities, are carried out collective (Food and Agriculture Organization of the United Nations 2008, 2). Therefore, Indigenous Peoples require that not only their individual but also collective rights to food are realised (Knuth 2019, 17).

Therefore, Indigenous groups and individuals are rights holders and the right to food and other relevant human rights create human rights obligations for nation-states. States are required to fulfil human rights obligations and to domestically implement the right to food by ensuring that this right is protected by national legal systems (Knuth and Vidar 2011). Therefore, Indigenous Peoples can demand that the state fulfil these obligations to food (Windfuhr and Jonsén 2005, 19), which include: 'respecting traditional ways of living, strengthening traditional food systems, and protecting subsistence activities' such as reindeer herding (Food and Agriculture Organization of the United Nations 2008, 2), based on human rights. The right to food may be violated when (for example) in access of denial of access to land, deprivation of access to adequate and culturally acceptable food and contamination of food sources (Food and Agriculture Organization of the United Nations 2008, 2).

An alternative food sovereignty offers to existing food policies (a.k.a. food sovereignty claims) is often linked to the right to food because the two concepts aim at the same goals (Windfuhr and Jonsén 2005, 11). It is therefore useful for Indigenous Peoples to adopt a (human) rights-based approach to food-related policies. In practice, this means setting requirements for the effective implementation of alternative policies and the realisation of the (human) right to food (Windfuhr and Jonsén 2005, 11). This applies to the Sami's efforts to promote traditional pasture management as alternative to the state's long-standing reindeer reduction policy. In this case, a (human) rights-based approach and right to food provides the Sami with an additional legal argument when challenging reindeer reduction policy and the means to influence it (see Food and Agriculture Organization of the United Nations 2008, 2). It also helps them resist actions that could violate their right to food and other relevant human rights in their fight for food sovereignty.

Concluding remarks and outlook for the future

Traditional pasture management can help the Sami (re)claim control over their traditional food system. It allows the Sami to manage their reindeer and natural resources based on Indigenous knowledge autonomously and locally in their traditional land and territories. This management system would also help democratise reindeer husbandry in Finland. It supports the survival of the Sami language, of Indigenous knowledge, of Sami culture and livelihoods, and of biodiversity and nature as a whole. The (human) right-based approach can strengthen the Sami claim to food sovereignty – the claim to re-establish traditional pasture management. Traditional pasture management based on Indigenous knowledge can establish food sovereignty, and therefore food security, for the Sami in Finland.

Traditional pasture management can promote Sami food sovereignty in the following ways:

1. The use of traditional pasture management secures a subsistence base for the production of healthy, culturally appropriate food through traditional food systems.
2. Traditional pasture management supports the efforts of Sami reindeer herders to keep traditional, sustainable reindeer herding practices alive.
3. Traditional pasture management represents an alternative to the reindeer reduction policy that undervalues Sami reindeer herders and threatens their traditional livelihood.
4. Traditional pasture management places Sami culture and Sami reindeer herders and their needs at the centre of decisions on reindeer management policy.
5. Traditional pasture management returns control of Sami territories, lands, and natural resources (including reindeer) to Sami reindeer herders.
6. Traditional pasture management recognises the need for the Sami to inhabit and share different regions and territories and therefore enhances food sovereignty.
7. Reindeer husbandry conducted in accordance with Indigenous knowledge of traditional pasture management, helps conserve, develop, and manage local food production through traditional food systems.
8. When reindeer herders, researchers, and policymakers collaborate and revitalise rotational grazing systems, young people can learn how to manage pastures according to Sami traditions; this will pass Indigenous knowledge on to future generations.
9. Traditional pasture management is a low external input ecological production method that promotes the contributions of ecosystems and improves resilience in the face of climate change.

Traditional pasture management is a step towards ultimate food sovereignty, which includes 'upholding our sacred responsibility to nurture healthy, interdependent relationships with the land, plants, and animals that provide us with our food' (Indigenous Food System Network).

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