Indigenous Perspectives on Forest Fires, Drought, and Climate Change in Sábme: A Collaborative Arts-led Research Project

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Resum

L'impacte dels incendis forestals a Suècia, comunament atribuïts al canvi climàtic, s'ha convertit recentment en una preocupació nacional i internacional. L'objectiu general del projecte de recerca inter i supradisciplinar presentat en aquest article és analitzar, documentar i posar l'atenció sobre la custòdia local i indígena/Sámi de la terra, especialment en relació amb la gestió d'incendis, la sequera i altres aspectes del canvi climàtic. El projecte es fonamenta en el creixent camp

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de l'educació i el coneixement indígena basats en la terra (Wildcat et al., 2014). Està dirigit per un artista i investigador experimentat en col·laboració amb comunitats indígenes Sámi i acadèmics Sámi. El projecte reuneix la recerca artística i documentació visual amb la història de la tecnologia i la ciència, la història ambiental amb la tecnociència feminista i el gènere i metodologies indígenes i coneixement Sámi. Basant-se en els mètodes disponibles dins de les disciplines de recerca, el projecte proposat utilitza un ampli treball de camp, recerca d'arxiu i documentació audiovisual, incloent entrevistes, documents, imatges de drons, fotografies, escrits i tallers, com a font d'investigació, comunicació i difusió. Investiguem els coneixements ecológics locals i Sámi disponibles. A més, avaluem com la recerca artística i la documentació visual -amb un enfocament crític i desenvolupada de manera col·laborativa- es pot utilitzar per documentar, analitzar, discutir i proporcionar una base per promoure els coneixements indígenes en el debat sobre l'estat nació i el canvi climàtic.

Paraules clau: Recerca artística; canvi climatic; incendis forestals; coneixement local / Sámi; supradisciplinar.

Abstract

The impact of wildfires in Sweden, commonly claimed to be caused by climate change, has recently become a national and international concern. The overall aim of the inter- and supradisciplinary research project presented in this article is to analyse, document and draw attention to the local and Indigenous/Sámi stewardship of land, with specific regard to fire management, drought, and other aspects of climate change. The project situated within the growing field of Indigenous Land Based Education and Knowledge (Wildcat et al., 2014). It is run by an experienced artist and researcher in collaboration with Indigenous Sámi communities and Indigenous Sámi academic scholars. The project brings together the disciplines of artistic research and visual documentation with the history of technology and science, environmental history, feminist technoscience, gender research and Indigenous methodologies as well as Sámi knowledge. Based on the methods available within these research disciplines, the project uses extensive fieldwork, archival

research, and audio-visual documentation, including interviews, documents, drone images, photographs, writings, and workshops, as a source of research, communication, and dissemination. We investigate local and Sámi ecological knowledge available. Furthermore, we evaluate how artistic research and visual documentation -with a critical approach and developed collaboratively- can be used to document, analyse, discuss and provide a basis for promoting Indigenous knowledges in the nation state and climate change debate.

Keywords: Artistic Research; Climate Change; Forest Fires; Local/Sámi Knowledge; Supradisciplinary.

Introduction

Indigenous peoples are often portrayed as the victims of the negative impacts of climate change. Also, the so-called *green* transitions processes often directly contradict the needs and demands of Indigenous communities. When they are not portrayed as victims, they are being ignored entirely and made invisible. Not only are they being obscured and erased, but so is their knowledge, expertise, agency, knowledge transmission and traditions. This is true in Sweden, the EU, and the world at large. Therefore, the focus of this research project is on the local and Indigenous people who are being excluded from the settler colonial state's discussions, debates, and actions. They are made invisible, or *invisibilised*, that is turned into *non-actors* by powerholders. Known in several circumstances, the strategies of invisibilisation are commonly used to avoid meeting affected peoples on their own terms, designed to reduce and/or make it possible to ignore their knowledge, expertise, demands and rights (Öhman, 2005; Smith, 1999; Shiva, 1993). Hence, an important objective of this project is to challenge these omissions.

Indigenous peoples have been the stewards of their lands and water for millennia, living in relationships that encompass respect for and exchange with the landscapes, waterscapes, animals and other living

beings. Indigenous communities have always lived with climate change and adapted accordingly, as studies show (Maldonado et al., 2013). This research project takes its point of departure in the agency and expertise of the Indigenous/Sámi people, and other non-Sámi local people. It builds on experiences from international alliances rooted in struggles between Indigenous and non-Indigenous activists, in close collaboration with academia and the arts community. We highlight the local/Sámi peoples' longstanding knowledge and expertise of land management with two aims: to provide an understanding that can help nation states manage the negative impacts resulting from climate change, and to support Indigenous communities that are currently suffering from the consequences of the colonial nation states' mismanagement of lands and water. Through historical and contemporary lived experiences, the project refers to the concept of *Árbbediehto (In Lule Sámi. Árbediehtu in North Sámi, aerpiemaahtoe in South Sámi),* which literally means *inherited knowledge* (Porsanger & Guttorm, 2011). *Árbbediehto* refers to the wisdom and expertise that Sámi people have used to enhance their livelihood for millennia and that has always been passed down from generation-to-generation *buolvas buolvvaj*, that is to say orally, through stories and teaching, and everyday work and practice. Thereby the concept of *Árbbediehto* links the past, the present and the future (Jonsson, 2010). Within this expertise and wisdom, there is much experienced holistic knowledge of the interdependence and interconnection between humans, nature, animals, and spirits. We acknowledge and relate to *Árbbediehto* to co-produce knowledge and develop important understandings for a much-needed shift regarding climate change mitigation and heat/drought and fire management.

Background

Sámi are an Indigenous people whose traditional ancestral land of Sábme crosses the modern nation states of Finland, Norway, Sweden, and Russia. On the Swedish side of Sábme, Sámi have been landowners, paying taxes for their lands, until very recently. Through a process of dispossession by the Swedish state in the 19th and early 20th century, the lands of reindeer herding Sámi were taken control of. Reindeer herding Sámi were now only allowed to make use of lands for reindeer

herding, but not to own their lands. Sámi who gave up reindeer herding and adapted to norms of *Swedishness*, hiding Sámi identity, had sometimes the opportunity to remain landowners (Lundmark, 2006). The systematic subdivision, expropriation, and industrialization of Sábme has resulted in the dispossession of historical Indigenous lands, and the fragmentation of Sámi cultural belonging and identities. While Indigenous people are already suffering from the consequences of colonial settler abuse and exploitation of their territories, current climate change policies and actions led by settler nation states promote mitigation policies that negatively impact Indigenous peoples and put even more pressure on their survival, both physically and psychologically. At the same time, anthropogenic and colonial-induced environmental changes are continuously altering the ecological conditions that support Indigenous peoples' cultures, resulting in the fragmentation of their territory. This is putting further pressure on reindeer herding in times of extreme weather events. Although Indigenous peoples' land-use practices leave a low ecological and climate footprint and there is growing evidence about their resilience, they are among the most exposed to climate change (Ford et al., 2020).

In Sweden, as in many other nation states, extraction takes place within territories where Indigenous people live and carry out traditional economic activities. As reported by Lawrence and Kløcker (2019), reindeer herding communities across the Arctic are facing multiple new challenges. One of the most serious concerns for reindeer husbandry today is the loss and fragmentation of reindeer pastures caused by infrastructure development, resource extraction and human activity (Lawrence and Kløcker, 2019) (Figure 1). Furthermore, the transition to what is commonly referred to as a *green economy*, in terms of solar and wind power, battery storage and electric vehicles has prompted a global surge in forecast demand for critical minerals. As Diego Marin (2024) from the European Environmental Bureau claims, since the Russian invasion of Ukraine (2022), the EU has been pushing to secure the supply of raw materials through the Critical Raw Materials Act (CRMA) which will fast-track strategic projects to meet the high demands of the industry.

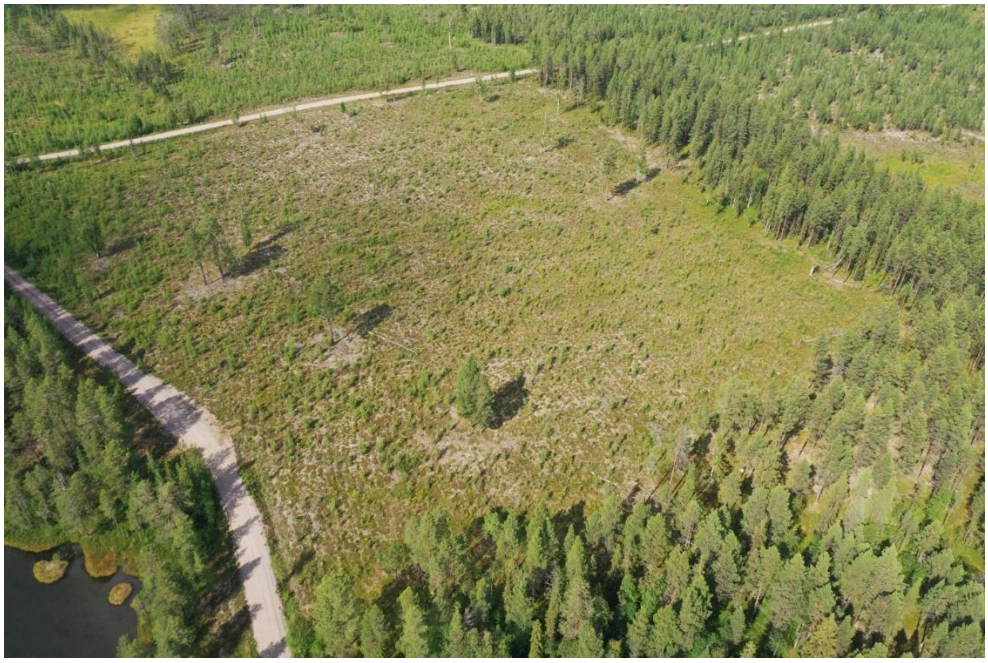

Fig. 1. Ignacio Acosta (2024). A bird's-eye view of a fragmented old-growth forest, disrupted by the forestry industry, intersected by roads and resulting in loss of reindeer pastures. Klockartjärn unprotected forest, Arvidsjaur Municipality.

The acceleration of mining projects in the Norrbotten Country is a matter of concern for locals and Sámi people. Recently, the Supreme Court gave the go-ahead to Gallák mine after more than a decade long battle against it by the Sámi communities, local people, and the Swedish Nature Conservation Society. Gállok North is one of the largest unexploited iron ore deposits in Europe. The UK-based Beowulf Mining PLC, through its Swedish subsidiary Jokkmokk Iron Mines AB, has applied for a twenty-five-year exploitation concession to establish a mine at the site. If a mine goes ahead, it will have a massive impact on the area's fragile ecology and cause further disruption to the reindeer migration paths. Also, Sámi cultural life in the area would experience an irreversible decline as well as the loss of valuable Indigenous knowledge.

Another controversial case is the iron mine in the Pajala municipality, which was managed by Northland Resources until 2017 -when it went bankrupt- and re-opened under the new name Kaunisiron in 2018. Talga Resources, an Australian exploration venture plans to open a graphite

mine outside Vittangi along a 15-kilometer stretch of the Torne River with a processing factory located in Luleå. As Müller (2021) states, from Viscaria north of Kiruna to Stekenjokk on the border between Västerbotten and Jämtland, there are currently nine new copper mines. The company Bluelake Mineral hopes that rising nickel prices will make it possible for them to invest in a large nickel mine in Rönnbäcken south of Tärnaby that has been blocked for a long time. It is not just mining, but also the electricity production required for the energy intensive mining industry (through onshore wind power, offshore wind power, solar panels, energy storage and hydrogen production) that generates significant socioenvironmental impacts. Industrial forestry using clearcutting (a brutal technique where all the trees are felled), large-scale hydroelectric power generation, railways, and associated infrastructure development are also taking place. Reindeer herders bear witness to that large forestry and large-scale hydropower and clearing have reduced winter grazing areas (McVeigh & Thymann, 2022), meaning lichen-abundant forests traditionally good for grazing the reindeer have declined by 71 per cent over the last sixty years (Sandström et al., 2016). It has been argued that the main reasons for the decline of grazing land is the infrastructure development such as mines and associated infrastructure (Routrier et al., 2022), climate change-induced vegetation greening (Cornelissen et al., 2001), intensive reindeer grazing (Akujärvi et al., 2014) and commercial forestry (Kivinen et al., 2010). As result of the territorial fragmentation of Sábme, reindeer herders are pressured into dependence on fossil fuel industries to maintain their cultural and economic livelihoods, and due to legislation on land ownership, are particularly vulnerable to fire on their grazing lands. Sábme is furthermore largely affected by hydropower development, where large areas of reindeer grazing land have been lost and the former land-based reindeer migration in many areas driven out by lorry transportations (Öhman, 2016; Össbo, 2014).

In Swedish national policymaking regarding climate, Sámi voices continue to be excluded and invisibilised. Despite Indigenous people's international organizational work, a similar situation prevails in other Scandinavian countries, and at the EU level as well as at a global level

(Claeys & Delgado, 2017). Indigenous people have long been adapting to climate change where colonialism has brought about industrial developments at a fast pace leaving Indigenous communities even more vulnerable. Negative consequences include health problems related to new diets as well as the erosion and destruction of their culture, banning of Indigenous cultural expressions, including language, or putting them under pressure. Indigenous peoples commonly understand their vulnerability to climate change as an intensification of colonially induced environmental changes. Indigenous climate change studies are a new and growing academic field and involve many types of work like resiliency plans, such as the Salish Kootenai Tribe's *Climate Change Strategic Plan*, the Inuit Petition expressing the *right to be cold* and conferences such as *Climate Changed* by Indigenous Peoples Climate Change Working Group (Whyte, 2017).

Collaborative arts led-research practice

In this context, we initiated the research project *Indigenous perspectives on forest fires, drought and climate change: Sábme* that builds on earlier and ongoing research collaborations with the local and Sámi community. The project is directed by Ignacio Acosta and May-Britt Öhman. Acosta is a Chilean-born visual artist and researcher with long-term engagement with the community of Jåhkåmåhkke since 2017. A Post-Doctoral Researcher at Uppsala University and a Research Associate at the Royal College of Arts (RCA), his projects focus on resistance to the fragmentation produced by extractive industries (Acosta, 2020; 2018). May-Britt Öhman is associate professor of Environmental history at Uppsala University, an expert on Indigenous methodologies and a Sámi scholar, herself Lule of the Forest Sámi of the Lule River valley. Öhman has specifically addressed hydropower and impacts on Sámi communities since 1999. Based on the methods available within different research disciplines, our project uses fieldwork, archival research, and audio-visual documentation as a means of research, communication and dissemination. The research process is conducted through a collaborative approach and reciprocal thinking. The aim is to collaborate directly with Indigenous organizations and local communities in Jåhkåmåhkke, as well as other stakeholders. Our views are inclusive of

different perspectives that go beyond those of the dominant culture groups and challenge colonial legacies. We develop ways to make/claim space for Sámi perspectives and integrate feminist and queer stances into our research.

The project contributes to Indigenous Studies, a knowledge/power domain where the connections between Indigenous knowledge, relatedness, and embodiment distinguish and mark the epistemological foundation of scholarship. The common denominators are Indigenous peoples' own aspirations, values, and perspectives, as well as the development of research theories and methodologies. Indigenous-based and ethically sustainable research relationships are essential. The methodology includes semi-structured interviews with the Sámi communities who have the Indigenous ecological knowledge and expertise available on how to manage the fires, as well as methods to protect communities from devastating forest fires. We also carried out interviews with representatives from the Rescue Services section of the municipalities in Norrbotten County and representatives from the forestry industries/enterprises, including other local non-Sámi expertise. To recruit participants, we are using the *Snowball* sampling method -or chain-referral sampling- to select which existing subjects provide referrals to recruit samples required for a research study (Geddes et al., 2019). The individuals are not in a random sample but are named by participant projects. Subsequent people are recruited by other participants, which ensures the interviewees come from reliable sources drawn from the experience of the researchers working and living in Jåhkåmåhkke.

Qualitative semi-structured individual interviews (Kvale & Brinkmann, 2009) are conducted with the above-mentioned groups. The interviews are based on an interview guide consisting of several predetermined questions adapted to each group. We use a video camera and a sound recorder to explore the same questions with all participants. Each answer from the participant can be further analysed through follow up questions. The interviews are carried out in the preferred language of the interviewee. We ask each participant open-ended questions and engage

them in dialogue in a culturally sensitive and respectful manner considering the unique needs and perspectives of each individual while respecting the Sámi culture, values and traditions. The researchers cover the costs that project participation implies and compensate for any loss of work.

Audio-visual methods

This project is developed using an interconnected research practice that involves extensive fieldwork, investigative analysis, visual documentation and critical writing on sites and materials of symbolic significance. It has an artistic exploration at its core and is informed by and developed with further archival research and theoretical epistemologies including arts-led, practice-based research and documentation. It aligns with the notion of *critical realism*, a term that contains more than an artistic style: it is a practice, a research method that, as well as making notes about reality, brings questions to the foreground without offering ready-made answers. It offers snippets of reality and leaves their traces in viewers' minds. *Realism* has also been defined as a research method that testifies to a certain artistic and social engagement (Baetens & Gelder, 2006). For Bate (2009), it is a mode of representation that supports reality since the realism of an image corresponds to a perception of reality. An important reference are Sekula's photographs, which fluctuate between art and documentary and reflect on the possibilities for the visual arts today to deliver an *act of criticism*. (Martha Rosler in Edwards, 2013). Documentation is carried out using new *seeing machines*, such as drones, video cameras and sound recorders. We also use cutting-edge technologies including drone image perspectives to generate accurate image-based data. This constellation of materials is accompanied by interpretative/critical texts underpinning the significance of such investigations. Furthermore, writing creates an account of the Boreal Forest ecology via art-science collaborations through inventories for red species that are documented and archived. Historical accounts and studies on how these forests have been managed are created.

Visual methods comprise a vast array of different types of approaches and data (Prosser, 2007). Besides interviewing people, we record data from landscapes and forests where each interview takes place, upon agreement with the research participants. It is important to discuss with the person in detail what can and cannot be documented. Where possible, we employ a non-invasive methodology of filming, based on video as an observation technique.

Supradisciplinary research approach

We use an inter- and *supradisciplinary* research approach based on Indigenous and decolonial methodologies to make a positive impact on the communities. This is a methodology developed by Öhman (2017) over the last decade. The supradisciplinary approach is closely tied to the collaborative approach with *stakeholders*. The ambition is to carry out research whose problem formulation arises by the stakeholders themselves, meaning Indigenous communities and associations, as well as Sámi individual reindeer herders and local inhabitants who do not identify as Sámi. To address the fundamental epistemological aspects of risk, safety, and the ideals of sustainable futures, we work through a supradisciplinary project, which goes beyond a multidisciplinary or interdisciplinary approach, by recognizing and empowering non-academic knowledge. This implies engaging with situated knowledge and partial perspectives (Haraway, 1988, 1991) and *what's the problem approach* (Bacchi, 1999) that provides an opportunity to place the focus on values and attitudes behind a decision to identify something as a political problem or avoid doing so. To this we add aspects of food security and food sovereignty, as discussed by several Sámi individuals, representatives, organisations, and the Sámi parliament (Nilsson, 2021).

Ethical responsibilities

We are guided by the research strategy of the Sámi Parliament *Forskningspolitisk strategi* (2020) as the basis for planning and managing our work and with the goal of strengthening Sámi cultural systems and

values as well as to promote and disseminate Sámi situated Land-based knowledge and expertise. The research has been approved by the Swedish Ethical Review Authority (Dnr 2023-04227-01). Within the application for ethics approval, we have highlighted any risks and how we try to minimize these for the participants in the study. We acknowledge that any participation in a project of this kind might result in harassment for the participant. We use audio-visual material as a means of research, communication, and dissemination and as a platform to explore and voice Indigenous knowledge. However, the representation of Indigenous knowledge and tradition is a delicate matter because the photographic medium itself has been widely used as a tool of colonization. Thus. we use the medium as a decolonial critical tool to empower Indigenous communities to challenge colonial legacies. As documentary filmmakers, there are ethical responsibilities to the subjects of our films to prevent any direct or indirect damage that might stem from their participation (Maccarone, 2010). The ethical decisions we make along the way are based on care, and with the desire to act in ways that benefit the Sámi community (Edwards & Mauthner, 2002). We call for the development of collaborative relationships in research to act in ways that benefit the individual or community/group. We strive to develop mutual trust relationships with participants so that the images that emerge from collaborations are jointly owned (NCRM, 2008).

Participants are thoroughly informed about the research project and the implications of their participation. They sign a consent form that sets up the conditions of the collaboration. They are fully aware that the results of the research are made public. The research participants are free to withdraw their participation at any point. We treat information and data confidentially. Issues of risks, integrity, privacy, and anonymity (Blomfield & Lenette, 2019) are discussed in detail with each participant, within the research group and at supradisciplinary workshops. For Indigenous Sámi people using information without referring to the source may be considered theft of knowledge and disrespectful. As discussed by Svalastog and Eriksson (2010) for Indigenous peoples not being identified as the data source might cause harm to a person or community, or both. Therefore, the default of anonymization is replaced by careful deliberation, together with research participants, on how to handle issues of confidentiality and identification.

When research participants request, we use digital methods to preserve anonymity to be able to share their experiences without the need to reveal their identities, as data is stored. There is a variety of digital post-production techniques, e.g., voice alteration, obscure or blur faces, conducting interviews in silhouette or shadow, animating or re-enacting situations, creating just audio recordings, using pseudonyms instead of real names and distorted or out of focus backgrounds. Collaboration is achieved in a sensitive environment, taking into consideration that Indigenous peoples -like the Sámi- have experienced intergenerational trauma as the result of colonisation processes, and are continuously experiencing discrimination and racism. Hence our research presents some complexities and challenges regarding where consent is needed. We are aware of the legal considerations of both, taking images (photographs or video clips) and the context in which they are subsequently exhibited. Filming someone in a place or situation where they have a reasonable expectation of privacy might be an invasion of privacy (NCRM, 2008).

We are also aware that participation in a project of this kind could harm participants. We continuously work to identify and minimize risks. Voicing Indigenous/local communities requires a focus on the community agency in the decision-making process around ethics (Gordon, 2019). We apply an *ethics of care* (that incites the moral value of care in every choice and behavior of an individual or community as a universal epistemology) to fulfil our commitment to the project. We aim to avoid perpetuating existing inequalities and power imbalances, reinforcing a sense of marginalization or exploitation for the participants. To mitigate these risks and prioritize the well-being of participants, we approach them with sensitivity and provide appropriate emotional support.

Participation in a research group may involve sharing personal or sensitive information about the individual of the community. When analysing the data, we carefully consider if the information provided can be used and what may have a negative impact on participants (Carroll et

al., 2020). We rely on the Indigenous knowledge of Sámi collaborators to avoid cultural misunderstanding. In addition, we provide protection of privacy and guarantee confidentiality if the knowledge holder wishes to be anonymous. There is a risk of misinterpreting cultural practices or undermining traditional values, leading to misunderstandings, or reinforcing stereotypes about Indigenous peoples that might further undermine their rights, if not appropriately thought through.

Forest Fires Stories in Sábme

Fire is a natural ecological factor and an important process in the Boreal Forest (Niklasson & Granström, 2000). Special insects, fungi, lichens, and plants, all depend on what grows after a fire. With intensive forestry industries focused on high production and firefighting techniques, the number of fires in Norrbotten has decreased significantly since the end of the 19th century (Engelmark, 1984). As a result, the diversity in the Boreal forests created by forest fires has been dramatically reduced (Schimmel & Granström, 1991). In the summer of 2018, Sweden was struck by heat, droughts, and wildfires. The Norrbotten County was one of the most seriously affected areas. A major focus in news reporting was on the evacuation of residents in certain areas and the loss of valuable forestland, whereas the Sámi news drew attention to the major loss of reindeer grazing lands. These fires have had extensive consequences for the Sámi reindeer herding culture, not only financially but also regarding the mental wellbeing of the reindeer herders and their extended families. Due to Swedish state colonial policies and legislation dating back to the 19th century, reindeer herders have no possibilities to insure grazing lands, and there is no coverage financial losses caused by the impacts of the fires.

Today anthropogenic climate change is commonly blamed as the cause of forest fires. However, fire is not new in this forest ecosystem and fire management is part of the traditional Indigenous stewardship of lands. There is a growing call for the involvement of Indigenous knowledge in firefighting (Eriksen & Hankins, 2015) as well as the planning process of conservation burnings (Cogos et al., 2021). Regarding Sámi use of fire, Niklasson and Granström (2000) state that they were presumably careful, as opposed to the colonists (settlers) in Sámi territories, since

reindeer are dependent on the very slowly regenerating ground and hanging lichens for winter forage. However, new research challenges these assumptions and the state-imposed definitions of "real" Sámi livelihoods being reduced to reindeer herding, as the colonists themselves were often Sámi (Marklund, 2015; Larsson, 2014). Recent studies (Hörnberg et al., 2018) dispute the hypothesis of a *careful* use of fire among reindeer herders and present the assumption that reindeer herders historically used recurrent fires to promote and sustain reindeer lichen-dominated soil vegetation to maintain good winter grazing grounds in Scots pine forests. Yet, Sweden modern forestry has suppressed such fire management.

In 2018, the impact of wildfires, caused by climate change, has become a national and international concern. However, there is another take on wildfires and other extreme weather events when understood from Indigenous peoples' perspectives. While climate change is indeed ongoing, the knowledge to deal with it and adapt to the consequences of extreme weather events is not part of the current nation states' knowledge capital. An important aspect of the extreme weather events is that access to spare grazing lands is increasingly difficult due to colonial industrialization practices. Expert knowledge of lichens for reindeer grazing is well-documented among Sámi reindeer herders and there is ongoing work to restore reindeer lichen in burned areas such as the 2006 wildfire in Bodträskfors carried out in cooperation between reindeer herder Lars-Evert Nutti, forest manager Hans Winsa and ethnoecology Samuel Routrier (Roturier et al., 2022).

Acosta and collaborator Liz-Marie Nilsen, Sámi journalist and documentarian, were at Jåhkåmåhkke during the forest fires in 2018 supporting roles in cooking and food distribution for the firefighters. Öhman participated briefly in the firefighting activities and documented in photos and short videos and encouraged documentation for further studies. The video *Forest Fires* (Acosta & Nielsen, 2019) was produced after Öhman supported them in interviewing late Paul Eriksson, an elder from forest Sámi area, for The Native American and Indigenous Studies Association (NAISA) Annual Conference, Aotearoa/New Zealand (2019).

Eriksson narrated how their community helped to fight a wildfire in the summer of 1959. He was interviewed at the site where the wildfire took place and spoke about the *old forest-people* who fought the fire with deep understanding of the territory based on knowledge acquired during the controlled fires after logging and before plantations. They also interviewed environmentalist Ida Jansson in the Persbacka forest that was one of the most affected (Figure 2), as well producing documentation of the various forests during the wildfires. Since then, Acosta has followed these forests documenting them systematically to understand how forest recovers (Figure 3). He has also documented other forests ecosystems affected by previous forest fires to in Muddus National Park and Serri Naturreserve to understand the influence fire has played in shaping the forests in the long run.

Fig. 2: Ignacio Acosta (2018). Ida Jansson in Persbacka forest in 2018 after the wildfire. Jokkmokk Municipality.

Through interviews with elders, they have learnt how *old forest-people* used traditional techniques to combat fires, such as fire breaks, directing the fire to swamp areas and ditches. These contrast with those used in contemporary fire-fighting that employ large fire brigades and

helicopters but lack land-based knowledge. Results of this research show that this knowledge in part no longer exists. Views on the *old knowledge* were shared by two retired firefighters Thomas Andersson and Jan Eriksson (Fig. 4) in an interview conducted in the summer of 2024 at Jokkmokk Fire station. They narrated how people were used to being in the forest.

Fig. 3: Ignacio Acosta (2024). Ida Jansson in Persbacka forest affected by the 2018 wildfire. Jokkmokk Municipality.

Forest fighters knew how to deal with fire because they carried out regular burnings. However, this knowledge is increasingly being lost. These traditional practices were considered good knowledge that firefighters benefited from, as they could control the fire by learning to be in the fire using simple tools such as hosepipes, pans, buckets and shovels. Today, firefighters rely much more on expensive technology that transports water, such as helicopters and six and four-wheel vehicles. Moreover, wildfire suppression is controlled by monitoring systems, such as satellite surveillance technology managed by The Swedish Civil Contingencies Agency (MSB), meaning that wildfires are generally

extinguished quickly by fire local brigades and helicopters (Fig. 5). Currently, fire management in Norrbotten is driven by nature conservation objectives through conservation burning in protected forests and as soil preparation method in forestry, where burning practitioners considered fire an *agent* rather than a tool (Cogos et al., 2021). To reestablish the ecological function of fire for regeneration purposes, the County Board in Sweden (Länsstyrelsen) runs LIFE Taiga, a program in which burning practitioners reintroduce fire as an ecological process for the preservation of biodiversity (Fig. 6).

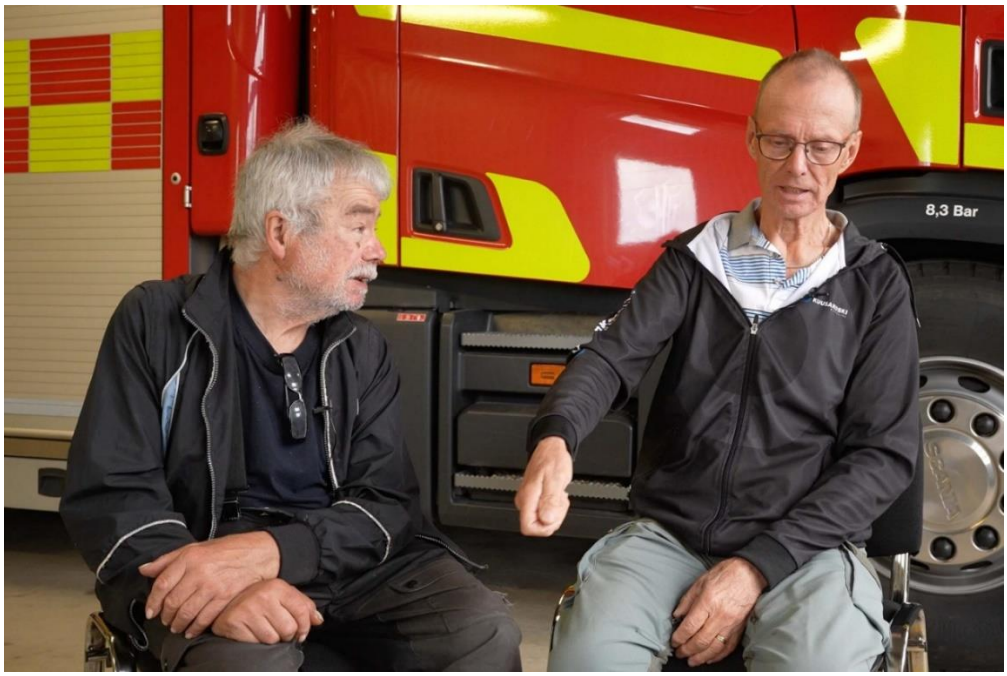

Fig. 4: Ignacio Acosta (2024). Retired firefighters Thomas Andersson and Jan Eriksson. Interview. Räddningstjänsten Jokkmokk, Jokkmokk Municipality.

To reestablish the ecological function of fire for regeneration purposes, the County Board in Sweden (Länsstyrelsen) runs LIFE Taiga, a program in which burning practitioners reintroduce fire as an ecological process for the preservation of biodiversity. (Fig. 6). Recent Government guidelines namely the *National strategy for the management of formally protected and voluntarily set aside forests until 2030* (2023) suggest prescribed burning as the management method primarily recommended

for conservation areas whose natural values are or have historically been characterized by fire as the use of controlled fire in selected areas helps to ensure that the special ecological structures created by fire can develop in the long term.

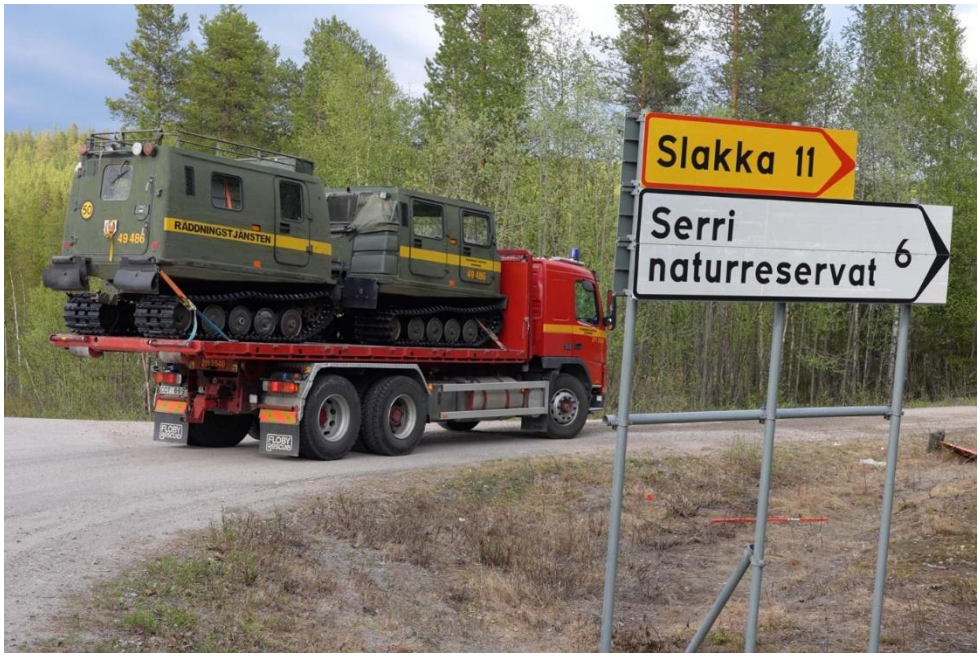

Fig. 5: Ignacio Acosta (2024). Forest brigades attending a forest fire, Serri. Jokkmokk Municipality.

Our project hosted a first supradisciplinary workshop in August 2023 in Jåhkåmåhkke where we met with Indigenous and Non-Indigenous collaborators, with activist Tamikuã Pataxó from the Pataxó Indigenous community in Brazil and multidisciplinary visual artist, ethnographic and researcher Marcia Camargo. The project also brought together a round table of Sámi experts to the Native American and Indigenous Studies Association (NAISA) Conference, Bådåddjo/Buvvda/Bodø, in Norway (2024). The panel *Árbbediehto for Dummies – adapting, transferring and visualizing traditional Sámi land-based knowledge* was organized to discuss the holistic experience-earned and Land based Sámi traditional knowledge system *Árbbediehto* (*inherited knowledge*), the

science of surviving and thriving in the Arctic region. The panel invited in conversation two Lule-Sámi translators, reindeer herder and knowledge holders. Their presentations examined the challenges of *Árbbediehto* in times of climate change, colonization and in relation to transfer Land Based and language dependent traditional Indigenous Knowledge. They reflected on how to reclaim and integrate *Árbbediehto* lost through colonization and further examined the role of visual/artistic research in relation to this traditional knowledge. They also reflected on the close interconnection between *Árbeddiehto*, language and identity. They introduced the historical and contemporary lived experiences of the national policies of forced relocation and division. Also, the forced relocation of Sámi reindeer herders from the northern areas to the central and south areas was discussed, opening a dialogue on how the politics of division led to inter-generational trauma and conflicts within and between Sámi communities and in Sweden.

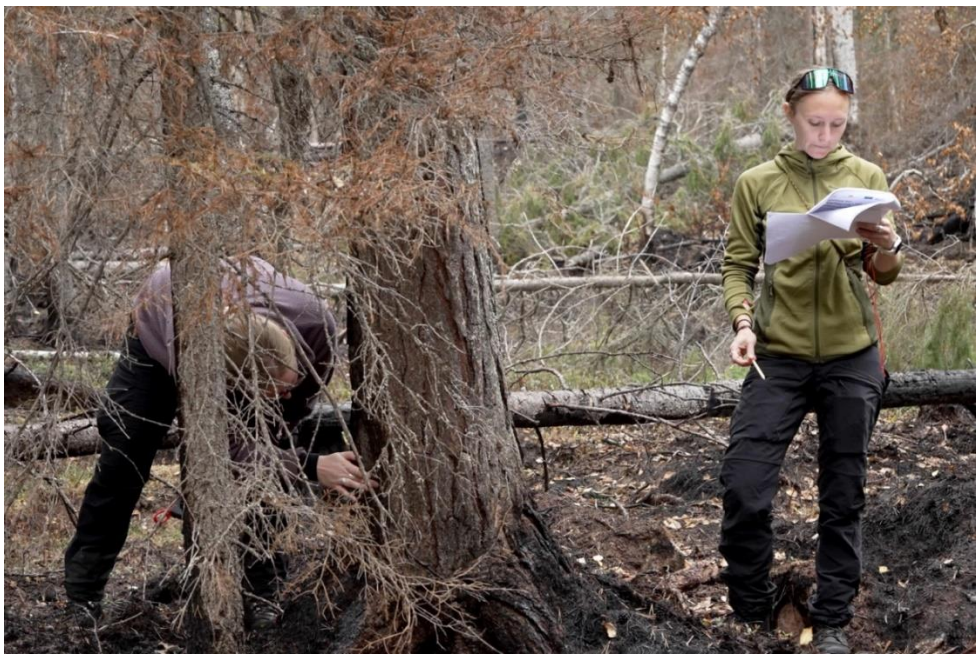

Fig. 6: Ignacio Acosta (2024). Employees from the County Administration Board Ester Andersson and Michelle Granlund collecting data at Rappomyran forest two months after prescribed burning. Jokkmokk Municipality.

In the summer of 2024, Acosta participated in Sweden's largest forest inventories or *conservation value assessments* organised by Föreningen Skydda Skogen in the area of Moskosel, Arvidsjaur Municipality. The aim of these field surveys is to collect data on the forest composition with the aim to protect of some of Sweden's last remaining old-growth boreal forests from clearcutting, a forestry practice where most or all trees in a specific area of a forest are cut down simultaneously (Sottosanti, n. d.). Acosta documented these inventories with special attention to the role of burned wood in supporting species diversity in forests (Fig. 7). His contributions to the organization include drone imagery and photographs, which are being integrated into comprehensive biodiversity reports. Once completed, these reports will be submitted to the Local Authority with the aim of advocating for their preservation.

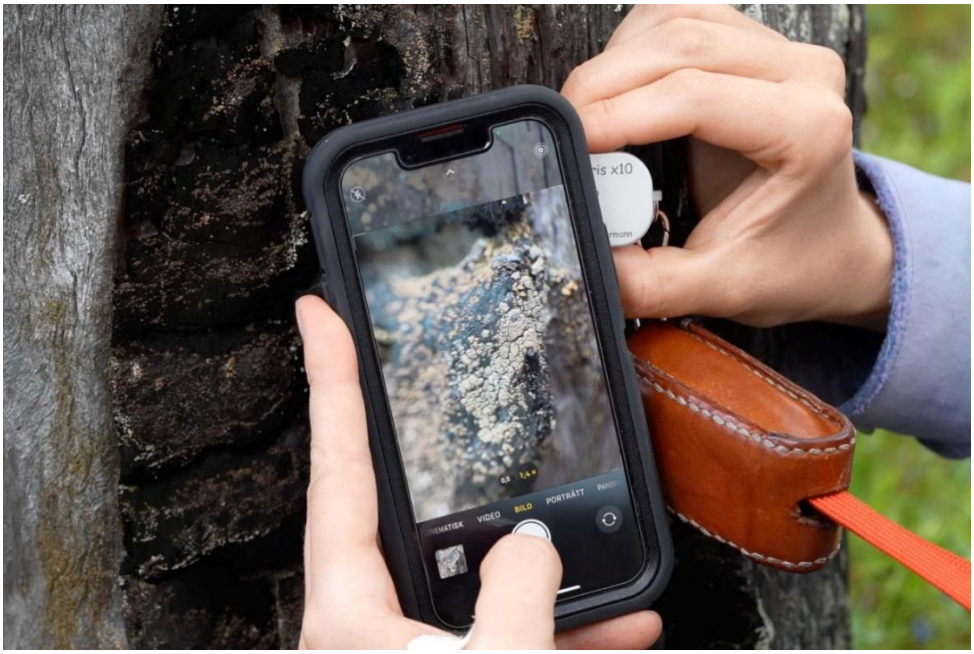

Fig. 7: Ignacio Acosta (2024). Conservation biologist Linnea Ingelsbo looking at "Trapeliopsis carbonicola" with "fruitbodies", a rare lichen species under investigation that lives on burnt wood. Suddesjaure unprotected forest, Arvidsjaur Municipality.

Since May 2024, as part of ongoing engagement with the local community of Jåhkåmåhkke, Acosta has revitalized *Myggholkens väntrum* (*Waiting Room at the Mosquito Nest*), a café and second-hand bookstore run by activist and retired nurse Elizabeth Johansson. Opened in 2011 with her late husband, Leif A. Öhman, this iconic space served as the hub for the activist group *Gruvfritt Jokkmokk* (*Mine-Free Jokkmokk*), which in 2013 played a pivotal role in the blockade of the prospecting area in Gállok. These actions have, to this day, prevented the opening of the iron mine by Beowulf Mining Plc. However, the space had been closed for five years before Acosta began collaborating with Elizabeth to reclaim it as a project space.

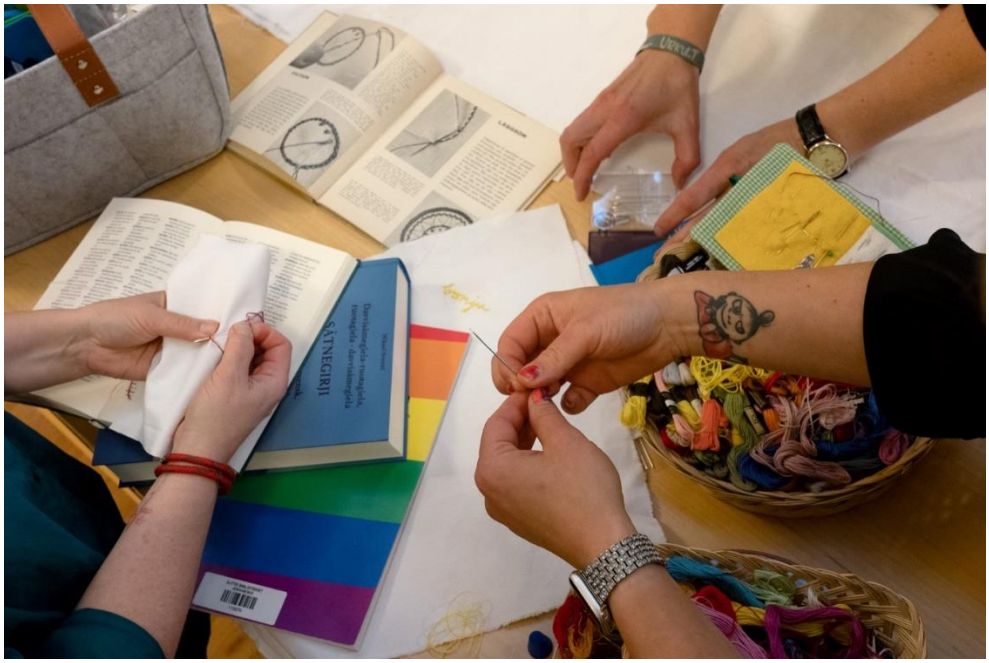

Fig. 8: Ignacio Acosta (2018). Queer Sámi language and embroidery workshop. Samernas Bibliotek, Jokkmokk Rainbow Week, Jokkmokk Municipality.

Acosta reorganized the bookstore's collection using queer and ecofeminist criteria, transforming the space into a vibrant hub for exhibitions and workshops in collaboration with the local community. Activities included events such as *Window Painting for Forest and Human Diversity*, *Queer Network for the Ancient Forest*, and the *Queer Sámi*

Language and Embroidery Workshop (Fig. 8), organized in collaboration community members and supported by Samernas Bibliotek and the Municipality of Jokkmokk, during Jokkmokk Rainbow Week (August 2024). The embroidery workshop, developed with the local community, explored possibilities for gender inclusion in Sámi languages, focusing on existing non-binary and non-dualistic gender terms. Participants embroidered these words onto fabric pieces, forming part of a collective queer-language embroidery artwork, which will be donated to Samernas Bibliotek upon completion. Most recently, *Myggholkens Väntrum* hosted its first exhibition (2024), featuring paintings by local artist Marietta Mamia under the theme *Trees are our parents. Without them, we are nothing. They have given us everything.*

Conclusions

> Nowadays there aren't any employees from Domänverket, which is now named Sveaskog.[1] Instead, it is private operators that harvest the trees and deliver them to the roadside.[2] That is how it is. It was normal to have your own lumberjack crew to be able to... There were controlled burnings but also forest fires. It was common at that time to do controlled burnings. One had knowledge about that. Today this knowledge is partly lost. (Thomas Andersson, personal communication, June 16, 2024)

Through this ongoing project, we attempt to address complex challenges that are both social and ecological. We do this through a constellation of stories about forest fire and adaptation to climate change collected via extensive fieldwork and deep engagement with the community. The artistic approach in this project includes interviews, visual documentation and includes both literature and empirical studies. We archive knowledge of *old forest-people* or elders with land-based knowledge to understand and support improved control of wildfires using local, mostly dry, techniques such as fire breakers and redirecting wildfires to mires, ditches or through *controlled burns*. We document

[1] Translator's note: Swedish state-owned forest company.
[2] Translator's note: for further transport to the processing plants.

forests affected by fires and create accounts on how human processes have managed, controlled, disrupted, or interfered with the life of each forest. We learn from programs that use fire conservation methods and follow burnt forest ecosystems to understand how forests recover. We carry out supradisciplinary workshops to bring together local knowledge and research, while contributing to activists' organizations that fight to protect the last unprotected Boreal Forest in Sweden.

Results from this ongoing research highlight the importance of local and Indigenous knowledge to provide ways of living with forest ecosystems that do not create imbalances. Artistic practice and research adopting a critical approach to power imbalances and focusing on human-planet relations may serve as a useful platform to explore and voice Indigenous wisdom. Working together with the community, we aim to strengthen the development of collaborative relationships between Indigenous and non-Indigenous peoples. We follow a decolonial approach to research and share authorship of the material with the interviewed participants as they retain the rights over the words spoken in the video recording as the copyright for their words rests with them. We acknowledge the importance to give space to queer and feminist perspectives that relate to notions of care and resilience in relation to the restoration of ecosystems, as opposed to the forestry industry's focus on profit.

Long-term and ethical art/documentary strategies, in our opinion, can offer new ways to re-examine global ecology through local and Indigenous knowledge. The sustained attention of art practice contributes to acknowledge their significance and expertise. Listening to local and Indigenous people's deep-rooted knowledge of the territories, under the guidance of Indigenous scholars and in close collaboration with the communities, constitutes the core of this project. By presenting dialogues, this research explores the potential role of artistic practice in representing the impacts of climate change and colonial exploitation, as well as its contribution to reconfiguring hierarchies of humanity and materiality, centre and periphery, economy and ecology.

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This research project is based within the growing field of Indigenous Land-Based Education and Knowledge. It is led by artist and researcher Ignacio Acosta in collaboration with the Sámi scholar and Associate Professor in Environmental history May-Britt Öhman and the local and Sámi community. The project also includes non-Indigenous academic scholars and environmental activists and invites non-Indigenous representatives within settler colonial states to co-produce knowledge and develop further understanding of the much-needed changes regarding climate change mitigation, heat/drought, and fire management.

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