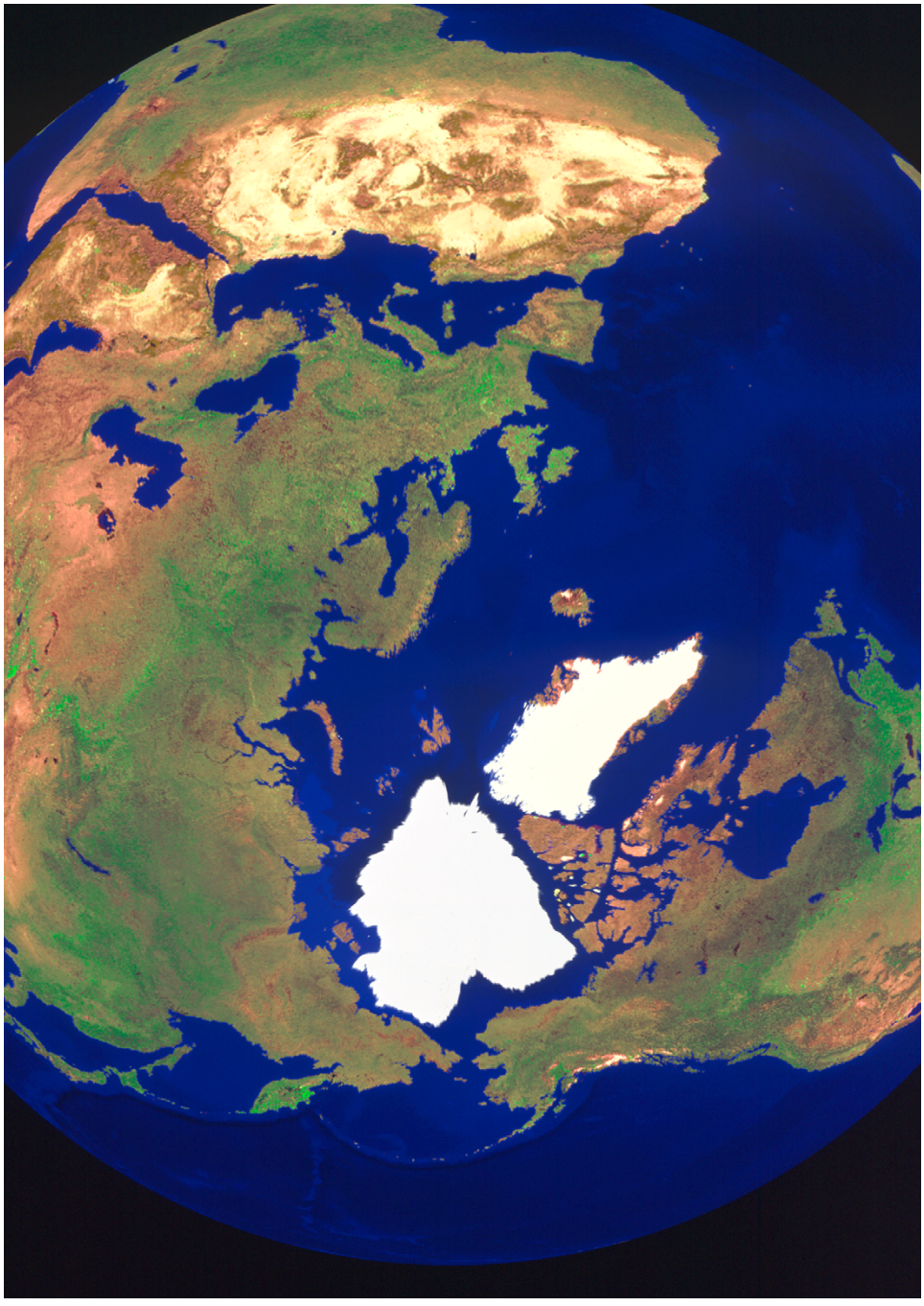
Journal of Northern Studies



Journal of Northern Studies

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Contents

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Risk Management of Working in Cold Environments

A Scoping Review

ABSTRACT Millions of people are exposed to cold environments daily. Adverse health risks are prominent for outdoor and cold storage workers. Therefore, a systematic risk management approach is highly motivated. This scoping review aimed to describe the current knowledge regarding risk management of cold exposure hazards in the occupational setting. We also examined differences between sexes in risk management practices regarding cold exposure.

The review included 25 peer-reviewed papers from 1980 to current in English and the Nordic languages, which could be divided into two categories: risk assessment and risk treatment. The risk assessment category included 17 papers, which investigated specific topics such as personal protective equipment, models for thermal balance, and individual differences regarding sex and body mass index. The risk treatment category included eight peer-reviewed papers, which emphasised the use of different protective or preventive measures and highlighted the importance of successful implementation and improvement of good practices.

To conclude, the previous literature on risk management of cold work was mainly oriented around technical risk assessment. However, there seems to be a lack of knowledge regarding implementation, resulting in inadequate protection for workers. Moreover, research was scarce regarding sex-dependent differences in risk management among workers exposed to cold.

KEYWORDS cold climate, working conditions, protective measures, primary prevention, implementation science, occupational health, risk assessment, protective clothing, legislation

Introduction

Millions of people are daily exposed to cold environments (Kummu & Varis 2011), and around the world, most of all temperature-related deaths are due to cold exposure (Friedman et al. 2020). According to international standards, cold work can be defined as occurring in ambient air temperatures at or below 10°, or when a person has cold-temperature-related symptoms (ISO 15743:2008; Mäkinen et al. 2006). The physical properties of cold environments are also defined in ISO 11079:2007. The main source of cold exposure in everyday life is low ambient temperatures, mostly outdoors during wintertime. Outdoor workers, such as construction workers, traffic controllers, postal workers, as well as child and elderly care staff are especially exposed during the winter season (Swedish Work Environment Authority 2022). In addition, occupational cold exposure also occurs indoors when working in cold rooms for food preparation and storage. External factors that also need to be considered include contact with cold objects and the effects of moisture and wind (Mäkinen & Hassi 2009; Stjernbrandt 2021). It is common, globally, to work in cold environments between 0 and 10 °C, thousands work in cold rooms below −25 °C and some industries even require temperatures between −40 to −50 °C (Ikäheimo et al. 2021). When exposed to cold, our body exerts numerous physiological responses triggered by decreasing skin temperature in the form of adjustments in peripheral circulation, shivering, and metabolic changes (Bjertnaes et al. 2022). Moreover, our experience and responses to cold are not only affected by external environmental factors, clothing, and activity (Stjernbrandt 2021) but also physiological factors, such as age, sex, fitness level, body size, health, and acclimatisation (Castellani & Young 2016; Gavhed 2008; Holmer 1993; Ikäheimo et al. 2021; Stocks et al. 2004).

Cold exposure evokes physical responses (e.g., respiratory, circulatory, dermatological, musculoskeletal, and cardiovascular) (Bjertnaes et al. 2022; Mäkinen & Hassi 2009; Parsons 2021). It could also change our psychological responses, such as cognitive abilities and performance, disposition, perceived comfort, and subjective experiences of cold (Falla et al. 2021; Giesbrecht et al. 1993; Parsons 2021). This could lead to a variety of behavioural changes, such as altered physical activity, risk behaviour, and decreased productivity (Havenith, Heus & Daanen 1995; Ikäheimo et al. 2021). Health effects from cold exposure can vary in severity and within occupational settings it can lead to disabilities and injuries. Longer periods of cold exposure increase cognitive stress and risk behaviour, which directly increases the risk of accidents (Hassi et al. 2002).

A systematic work-environment management approach should be used to ensure safe working practices and to maintain the well-being and health of employees. This approach is supported by the international standard for risk management which includes "setting strategy, achieving objectives and making informed decisions" (ISO 31000:2018:V). The outcomes within the risk management approach should be cost-effective, scientifically sound, integrated actions that "treat" risks while considering social, ethical, cultural, political, and legal considerations. Just as with the systematic work-environment management approach, the aim is to reduce or prevent risks. Identification, analysis, and evaluation of risk constitute the concept of risk assessment (ISO 31000:2018). Assessing cold exposure serves several purposes such as maintaining comfort, reducing the risk of adverse health effects, and increasing

performance and productivity (Holmér 1993). For this purpose, cold risk assessment models, methods, and ISO standards have been developed. For instance, the ISO 11079:2007 standard can be used for the determination of cold stress, required clothing insulation (IREQ) and local cooling effects. Additionally, there are health surveillance questionnaires, thermal comfort assessment methods, and tools for calculating an appropriate exposure duration (Hassi, Raatikka & Huurre 2003; ISO 15734:2008; Mäkinen & Hassi 2002).

Depending on the type of work, activity, and subjective experiences about cold exposure, flexible solutions to protect personnel are required, and will therefore differ between workplaces (Gavhed 2008). To be able to advance the knowledge about health risks from cold exposure, together with risk assessment and management of the hazards from cold work, a systematic review was initially intended. However, due to the heterogeneity within this research field, this approach was not feasible. A scoping review was therefore launched, aiming to map concepts, evidence, and gaps within this research field.

The primary aim of this scoping review was to describe the current knowledge regarding risk management of cold exposure hazards in the occupational setting. The secondary aim was to examine whether there were differences between sexes in risk management practices of cold exposure.

Methods

This scoping review was performed using the PRISMA ScR extension (Tricco et al. 2018). A systematic literature search string was developed and performed on 16 January 2023 (Supplementary data 1). The search strings defined the context to be "cold environment" with the concepts "work-related" and "risk planning." The search was limited to the years 1980 to current (2023). We included papers in English, Swedish, Finnish, Norwegian, and Danish. The search was performed in the following databases: Ovid MEDLINE and In-Process & Other Non-Indexed Citations and Daily (1,765 references), Embase Classic + Embase (2,249 references) and Web of Science, Core Collection (4,764 references). We used the controlled vocabulary of the Medical Subject Headings (MeSH) from MEDLINE, and the Emtree thesaurus from EMBASE, when applicable. In addition, the search fields title, abstract, and keywords were searched. All references were exported to Endnote TM (97.4; Thompson Reuters, Toronto, ON, Canada), removing any duplicates (1,767 references). All unique references were imported into the Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia), an online tool for screening references. A list of objective inclusion criteria was developed and made available for all reviewers participating in the blinded screening process.

For papers to be included, all outlined key concepts needed to be included (cold environment, work-related, and risk planning). Articles focusing on animals or technical systems (that did not specifically relate to human health) were excluded, as well as theses, reviews, expert opinions, books, letters, workshops, editorials, and conference proceedings. The first stage included voting (yes/no/maybe) based on title and abstract. The default setting was that each reference got two blinded votes. If the opinions of these two reviewers diverged, conflicts were solved by a third reviewer's

vote or by discussion until a consensus was reached. During this stage, 46 more duplicates were found and removed. From the 6965 references, 250 voting conflicts in the team occurred. A total of 273 abstracts were chosen for full-text evaluation, and this process was conducted with the same procedure as above.

The importance of the management perspective was emphasised. If a paper was solely about cold exposure in relation to a health effect, it was excluded, as it did not have a management or preventive perspective. After the first full-text review, 96 papers were considered, and three categories deviated from the original aim: military studies, disaster medicine papers, and laboratory studies. These were subsequently excluded. For the remaining 30 papers, references were scanned for any additional publications that had not been found in the original search. Three additional papers were found, resulting in 33 papers considered for this review. In this final round, all papers were once again screened in full text, with a specific focus on the study population. Another 8 papers were then excluded as they did not fulfil the inclusion criteria. In total, 251 papers were excluded in the eligibility stage, leaving 25 papers included in this review (Fig. 1). Since this scoping review was limited to studies of published literature, ethical approval was not required.

Results

A total of 25 peer-reviewed papers were included in this review from the years 1988 to 2022 (Table 1 and Fig. 2). About half (N=13; 52%) were published within the past 10 years. Roughly two-thirds (N=16; 64%) were of descriptive design, reporting on cold exposure or the use of risk management models or assessments. The remaining were either mixed methods or experimental designs where new models, tools, or software were developed and implemented. The most recent data collection was conducted in 2013 (Jussila et al. 2017; Reiman, Sormunen & Morris 2016). However, more than half of the papers (N=14; 56%) had not stated when data was collected.

About half the articles (N=11; 44%) included study populations exposed to indoor artificial cooling, mostly workers within food processing industries. Outdoor workers were exposed in various construction jobs, outdoor delivery services, forestry, or worked as travel guides, machine operators, or engineers. The largest study sample contained 1,323 participants (Jussila et al. 2017) whereas the smallest had 14 participants (Soares 2012). Almost two-thirds (N=15; 60%) of the papers specified the number of men and women participating. Three of the papers (Oliveira, Gaspar & Quintela 2008; Tirloni et al. 2018; Tirloni et al. 2017) included mostly female participants who were occupied either in food processing or supermarkets. Four of the papers (Anttonen & Virokannas 1994; Golbabaei et al. 2022; Inaba, Kurokawa & Mirbod 2009; Naesgaard et al. 2017) had study populations consisting of only men, working in the petroleum industry, construction, or as traffic controllers, postal workers, patrol skiers or reindeer herders. The environmental settings varied largely, from outdoor temperatures of −30 °C with high humidity and windspeed, to indoor temperatures of 15 °C.

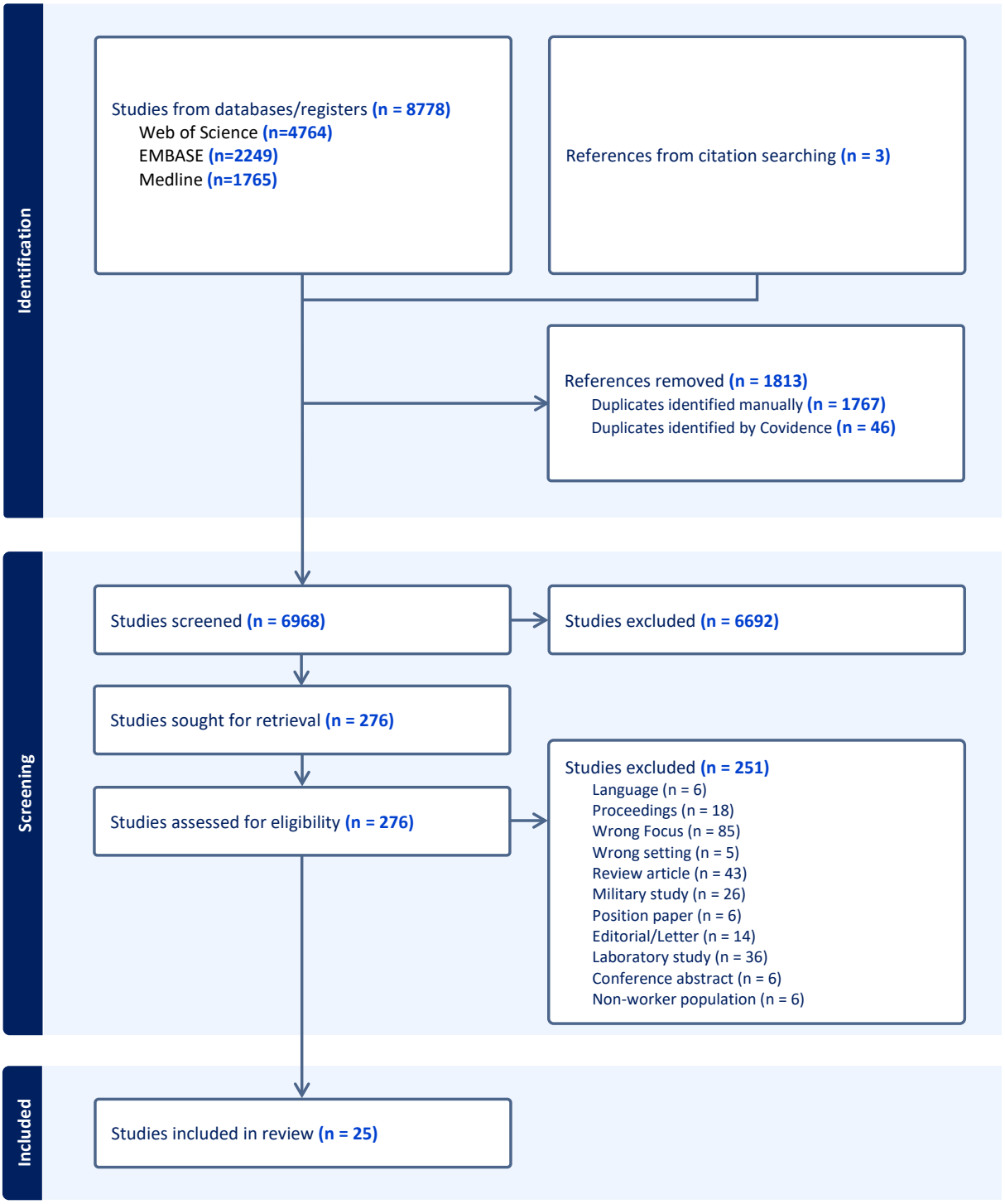

Fig. 1. PRISMA flowchart for the literature search and inclusion of articles in the scoping review.

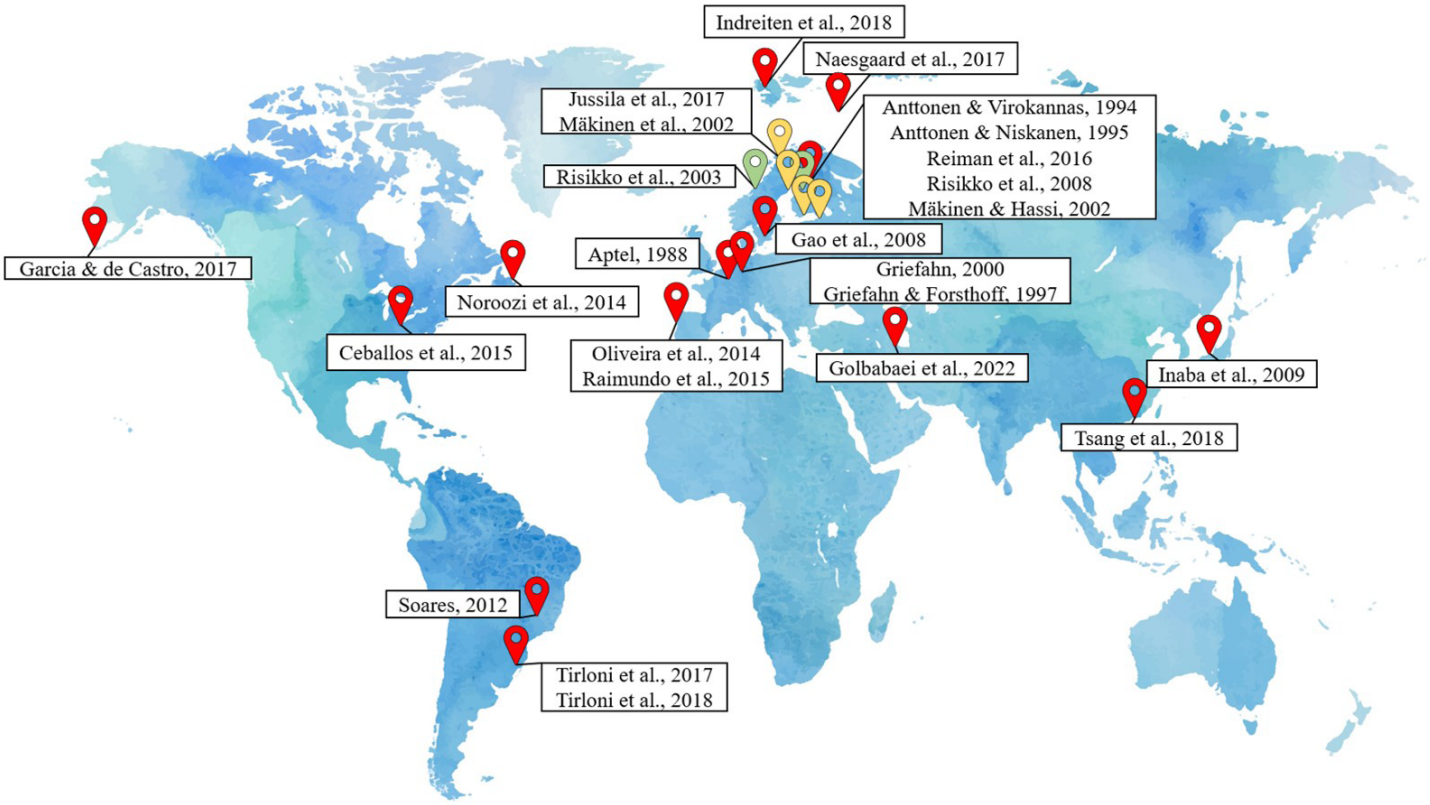

Fig. 2. Geographical distribution of study population origin. Yellow/Green marks = Collaboration across borders.

The aims and outcome focus of the included 25 papers varied within the broad concept of risk management of cold exposure. With guidance from the concept definitions in ISO 31000:2018 two broad categories could be identified: "risk assessment," which refers to the identification of problems, and "risk treatment," which entails the subsequent process when cold-related issues have been identified. A description of the papers and the classification into risk assessment (Table 1.1–1.2) or risk treatment (Table 2) are presented in Table 1.

Risk Assessment

Identification, analysis, and evaluation of risk define the concept of risk assessment (ISO 31000:2018). By using a systematic approach to identifying and understanding the complexity, character, and capacity of risk, the decision-making process is supported to develop strategies for reducing or eliminating risks. A total of 17 papers were included in this section and further divided into subgroups of different risk assessment focuses.

Table 1. Included papers. Descriptive information

Reference	Aim	Design	Occupation(s)	Sex	Environmental setting	Target group	Conclusion table
Anttonen & Niskanen (1995)	To develop a planning guide for local infrared heating systems and to compare the results to the heaters in the workplace	Experimental—intervention study without a control group	Workers in a meat and sausage packing factory	Not specified	Artificially cooled indoor environment (5 °C)	Management	2
Anttonen & Virokannas (1994)	To assess and evaluate the cold stress of outdoor workers in wintertime in Finland and the need for changes in the strategies for occupational health and safety	Descriptive—measuring existing exposure	Patrol skiing (N=8), road construction work (N=10), surveying work (N=8), railway yard work (N=8), reindeer herders (N=9), electrical fitters (N=10), postmen (N=18), geological drillers (N=9), forest machine repair (N=35), cold indoor work (butchers, wood milling, food processing and fishermen; N=15)	M=143	Winter outdoor settings (6 to −29 °C)	Management	1.1
Aptel (1988)	To determine if the thermal insulation of the provided clothes and clothes chosen to be worn by workers was sufficient	Descriptive—evaluation of workers' current clothing isolation and if they could evaluate their own insulation needs	Workers in slaughterhouses or cold stores, butchers, and storekeepers	Cold room group: M=21; cool room group: M/F=33 (not further specified)	Artificially cooled indoor environment (−30 to 10 °C)	Management	1.1
Ceballos, Mead & Ramsey (2015)	To describe work conditions and provide recommendations for thermal comfort and prevent safety and health problems for cold room employees at an airline catering facility	Descriptive—case study	Cold room employees at an airline catering facility	Not specified	Artificially cooled indoor environment (around 4 °C)	Management	2
Gao, Holmér & Abeysekera (2008)	To collect information on slips and falls on ice and snow and associated injuries, assess risks of various icy and snowy surfaces, identify design needs for footwear, and ascertain outdoor worker preferences for preventive measures	Descriptive—measuring existing exposure	Newspaper delivery service, northern military regiment, mining, and construction in northern Sweden	Newspaper: M=38, F=28; military: M=39, F=1; mining: M=52; construction: M=24, F=1	Outdoor winter season in northern Sweden	Management and product developers	1.1
Garcia & de Castro (2017)	To explore the types of problems among Filipino fish processing workers in an Alaskan community	Descriptive—using qualitative methods	Fish processing, handling frozen products	M=20, F=6	Northern Alaska, both indoors and outdoors, freezing temperatures	Management	2
Golbabaei et al. (2022)	To clarify the impact of cold environmental exposure on employees working at an oil transfer facility in northwestern regions of Iran	Descriptive—cross-sectional study	Workers at a petroleum transfer station	M=36	Outdoor temperatures, (daytime −20 to 5 °C, nighttime −24 to 4 °C)	Management	1.1
Griefahn & Forsthoff (1997)	To analyse differences between estimated and calculated clothing insulation for workers exposed to air temperatures between 0 and 15°C	Descriptive—technical note—measuring exposure	Daily cold-exposed workers, meat processing (N=24), distributors (N=11), brewery workers (N=4)	M=33, F=6	Indoor temperatures (0 to 15 °C)	Researchers, and management	1.1

Griefahn, (2000)	To determine if the IREQ model has applicability limitations and possible ways to improve it	Descriptive—field study	Daily cold exposed workers: meat processing (N=47), distributors (N=16), brewery (N=4), dairy industry (N=5) and chemical industry (N=3)	M=59, F=16	Indoor temperatures (0 to 15 °C)	Management	1.1
Inaba, Kurokawa & Mirbod (2009)	To compare cold prevention measures and subjective symptoms between construction workers and traffic control workers during wintertime	Descriptive—comparative study	Traffic control workers and construction workers	M=247	Outdoor winter conditions (3 to 9 °C)	Management	1.1
Indreiten, Albrechtsen & Cohen (2018)	To exemplify how experienced feedback and tacit knowledge are used to manage safety for operations in the high Arctic and discuss how experience feedback can ensure organizational learning for field operations	Descriptive—case study	University field workers, students, and field technicians during snowmobile and boat travels.	Not specified	Winter: avalanche terrain, sea ice, glaciers, harsh weather conditions; Summer: harsh weather, rough oceans, mountain terrain	Management	2
Jussila et al. (2017)	To investigate Arctic open pit mine workers' protective strategies against cold within working environments, and to assess the sufficiency of chosen protective clothing	Descriptive—questionnaire study	Open-pit mine workers	M=1211, F=112	Outdoor climate, mild or wet cold (−5 to 5 °C); dry cold (−20 to −10 °C)	Management and employees	1.1
Mäkinen & Hassi (2002)	To evaluate the usability of the ISO thermal standards, as well as to evaluate the need for training of workplace and occupational health and safety personnel in the use of these methods	Experimental—Observing work, and testing the usability of the thermal standards	Construction work; bricklayers, assistant bricklayers, reinforcing bar placers, mounters of prefabricated units, and supervisor of channel maintenance (seafaring)	Not specified	Outdoor work	Management, employees, and OHS staff	1.2
Mäkinen et al. (2002)	To elaborate a model and set of methods for the assessment and management of risks specifically associated with cold exposure at work and to improve knowledge about cold conditions among the staff of the participating companies	Experimental—testing new methods for risk assessment and management	Construction work (Finland, Sweden), forestry (Sweden), road maintenance (Sweden), and fish processing (Norway)	Not specified	Mostly outdoor work, indoor settings for fishery. Not specified temperatures or other factors	Management, employees, and OHS staff	1.2
Naesgaard et al. (2017)	To describe a user-centered design process for new personal protective clothing for petroleum workers operating on offshore installations in the Barents Sea	Mixed—innovation project including elements of participatory and user-centred design	Petroleum workers	Not fully specified. Cold chamber testing: M=6	Outdoor maritime conditions, between 0 to −30 °C)	Employees	2
Noroozi et al. (2014)	To suggest a novel methodology that emphasises how cold and harsh environments affect human performance	Experimental—testing a developed method	Offshore oil and gas facilities, operators, and engineers	Not specified	Not specified, Arctic and subarctic regions	Policymakers	2
Oliveira et al. (2014)	To characterize the working conditions in the food distribution sector regarding cold environments	Descriptive—field report	Supermarket staff, workers in freezers and refrigerated rooms, free-floating or controlled air temperature manufacturing workplaces	71 % women (translates to M=47, F=113)	Artificially cooled indoor environments, freezers (−10 to −20 °C); refrigerated rooms (0 to 10 °C); manufacturing workplaces (10 to 15 °C)	OHS staff, management, and government	1.1

Raimundo et al. (2015)	To assess cold stress in the food industry, particularly in freezing chamber working environments, and the achievement of useful guidelines for improvements	Descriptive—field study	Food industry workers, workers in freezers	Not specified	Artificially cooled indoor environments	Government and management	1.1
Reiman, Sormunen & Morris (2016)	To create an evaluation tool for heavy mining in arctic environments both for operator well-being and vehicle performance	Mixed—deductive approach of participatory ergonomics, observations. literature review and development of an OHS management checklist	Workers in an open pit mine, heavy mining vehicle operators	Not specified for miners: Observers: M=5, F=3	Outdoor winter season, northern Finland	Management and OHS staff	1.2
Risikko et al. (2003)	To create a cold risk management model for the workplace environment and to evaluate its practicality	Experimental—developing and assessment of a new model	Construction, food processing, airport personnel, fishing, and maintenance workers in the offshore oil industry	Not specified	Outdoor (construction work): wind, rain, snow, and icy surfaces; indoor (fish processing): 10 to 13 °C at feet level; 22 to 24 °C at head level; 6 to 7 °C for handled foodstuff	Management and OHS staff	1.2
Risikko, Remes & Hassi (2008)	To evaluate the implementation of cold risk management in Occupational safety and health practices at the Finnish Maritime Administration (FMA) and the effects of the development and implementation	Mixed—evaluating implementation	Maritime outdoor workers, pilots, channel and vessel personnel	Not specified	Outdoor maritime work	Management	2
Soares (2012)	To investigate the issue of the non-use of PPE (personal protective equipment) in a trading company of chilled and frozen food products	Descriptive—case study	Supermarket staff	M=10, F=4	Artificially cooled indoor environments: fridges, freezers, cold storage, and contact with cold products	Management	1.1
Tirloni et al. (2017)	To evaluate the temperature of the hands and its relationship with the thermal sensation of the hands and the use of a cutting tool in pig slaughterhouse workers	Descriptive—measuring exposure	Workers at a pig slaughterhouse	M=47, F=59	Artificially cooled indoor environments (8 to 12 °C)	Management	2
Tirloni et al. (2018)	To analyse the finger temperatures of the poultry slaughterhouse workers, and their association with personal and organizational variables, bodily discomfort perception, and thermal sensation of cold	Descriptive—measuring exposure	Poultry slaughterhouse workers	M=34, F=109	Artificially cooled indoor environments (9 to 12 °C); handling foodstuff (1 to 11 °C)	Government and product developers	1.1
Tsang et al. (2018)	To suggest an Internet of Things-based risk monitoring system designed to manage, real-time monitor, and assess product quality and occupational safety risks within cold chains	Experimental—testing a monitoring system integrated with a fuzzy logic approach	Suppliers, processes, distributors, and retailers for handling environmentally sensitive products, handling frozen meat, and seafood	Not specified	Cold chain work, freezing (−25 to −18 °C); chilling (0 to 8 °C)	Management	1.2

IREQ: Required Clothing Insulation; ISO: International Organisation for Standardisation; OHS: Occupational Health Services; M: Male; F: Female

Evaluation of Personal Protective Equipment (PPE)

Twelve papers (Table 1.1) evaluated personal protective equipment (PPE) and in general came to the same conclusion: the provided PPE (clothes, gloves, and footwear) did not sufficiently protect the workers from thermal discomfort or risks of cold-related health problems. An additional four papers (Anttonen & Niskanen 1995; Ceballos, Mead & Ramsey 2015; Naesgaard et al. 2017; Tirloni et al. 2017) focused on workers' thermal comfort and how different protective measures would be helpful.

Table 1.1. Evaluation of PPE

References	Conclusion
Anttonen & Virokannas (1995)	Performance decreases in cold conditions for light work from 10 °C, and adverse health effects occur from −6 °C. Protective clothing and health examinations should be evaluated. Practical and systematic evaluation methods should be used to prevent adverse health effects.
Aptel (1988)	Workers can evaluate their own needs in thermal clothing insulation with enough accuracy if the IREQ is under 1.5 clo. For workers where the IREQ is higher than 1.5–2 clo, it was difficult to increase their thermal insulation by adding garments.
Gao, Holmér & Abeysekera (2008)	Fall events occur most frequently on ice covered with snow. This is due to the difficulty of perceiving hidden risks to adjust gait strategies. The provided footwear was not sufficient protection against slips and falls. Slip prevention was mostly performed using anti-slip materials, such as salt or sand.
Golbabaei et al. (2022)	The available clothes are not sufficient to protect against the general whole-body cooling for long-term exposure. Sufficient hand function was compromised, with a temperature below 15 °C on some working days, putting them at risk of local cold injury. Face and finger temperatures dropped rapidly at 10 °C with wind. Almost all study participants stated that the winter season was the most challenging time to work. Many did not use personal protective equipment when in contact with cold objects below 0 °C, increasing the risk of local cold injuries. The authors conclude that current practices are not sufficient.
Griefahn (2000)	The IREQ model is applicable for air temperatures up to 15 °C but needs to be improved concerning sex. The model was primarily developed and validated for male subjects. High activity rates together with individual variations cause serious clothing problems as frequent adjustments during shifts can be impossible. A more even workflow, avoiding high and low activity combinations, is therefore the only solution.
Griefahn & Forsthoff (1997)	The estimated clothing insulation (of clothes worn) was significantly higher than the calculated requirement (according to IREQ). This discrepancy was related to time adjustments for the metabolic rate of single activities especially when temporarily exposed to different temperatures. (Saw differences in those working temporarily at 13 to 15 °C and those who always did). This would indicate that the IREQ model validation limits to between 7 to 13 °C. (Holmér presented cut-off at 10 °C).
Inaba, Kurokawa & Mirbod (2009)	Windchill index was used to measure objective cooling and there were no significant differences in cooling, pain, or numbness between traffic control workers and construction workers. Traffic control workers more often wore warm protective clothing than construction workers, due to high physical workload. Both groups were at risk of disorders due to their working environment (not having sufficient PPE) and there was a need for occupational health programs for the prevention of cold exposure disorders.
Jussila et al. (2017)	Arctic open-pit miners chose clothes ensembles depending on occupational (time outdoors), environmental (moisture, temperature, wind) and individual factors (cold sensitivity, general health). However, the selected clothing was not sufficient to completely prevent cooling at ambient temperatures below −10 °C. Reasons may be that heavy clothing restrict movement, compatibility issues with the use of several PPE at the same time or rapid changes in work tasks and physical load. Employers should provide sufficient cold protective clothing and guidance for the workers.

Oliveira et al. (2014)	The incidence of adverse health effects was higher among women. For a substantial percentage of the workers, the available clothing ensembles were inadequate for the environmental conditions, resulting in more difficulties in performing activities during the winter. An analysis focusing on sex showed that women experienced feeling more cold thermal discomfort and having less tolerance to cold conditions.
Raimundo et al. (2015)	The clothing ensembles normally used by the workers did not provide the minimum required insulation for the current exposure. Periods of exposure were too long and recovery periods too short, leading to physiological strain.
Soares (2012)	Staff was not wearing sufficient PPE as it is barely acknowledged by anyone. The supervisor instructed workers on the proper use of PPE, but follow-up was not performed. The company needed to take action to fulfil minimum legal requirements, including frequent training sessions, creating awareness, and instructing staff on how to use PPE properly.
Tirloni et al. (2018)	Most workers presented at least one finger with an average temperature ≤15 °C, perceived cold hands, and wore three layers of gloves on each hand. Hand tool use increases the probability of feeling cold. Protective gloves need improvement.

Ten papers (Anttonen & Virokannas 1994; Aptel 1988; Golbabaei et al. 2022; Griefahn 2000; Griefahn & Forsthoff 1997; Naesgaard et al. 2017; Oliveira et al. 2014; Raimundo et al. 2015; Tirloni et al. 2017; Tsang et al. 2018) used the required clothing insulation (IREQ) model within their research and analysis. Three of these (Aptel 1988; Griefahn 2000; Griefahn & Forsthoff 1997) were fully devoted towards refining and understanding this model. Aptel (1988) found that workers could attain enough thermal insulation without guidance if the need for thermal insulation was 1.5 clo or less (0 to 10 °C). Griefahn and Forsthoff (1997) found that workers wore clothes with higher insulation than suggested by IREQ. Griefahn (2000) concluded that the IREQ model could be used for air temperatures up to 15 °C and that most workers seemed to overestimate the need for insulation systematically. The reason could be that employees rarely replaced the frequently worn and rarely washed protective clothing, leaving the clothing insulation reduced (Griefahn 2000).

Tirloni et al. (2018) concluded that even though workers in a slaughterhouse used approved gloves, and several layers of gloves on each hand, the majority (77.9%) experienced cold hands in temperatures ≤ 15 °C. Two studies (Jussila et al. 2017; Raimundo et al. 2015) found that workers preferred to wear lighter, less restrictive clothing and be able to leave the cold workplace when they felt discomfort rather than to wear the recommended or sufficient insulation. Oliveira and colleagues (2014) pointed out that workers not provided with or using PPE were able to spend less time in adverse thermal environments. This leaves workers in need of longer and more frequent thermal breaks. However, results by both Raimundo et al. (2015) and Oliveira et al. (2014) found that almost half of all workers had no rest periods, and only 6% and 12% had more than 30-minute breaks, respectively.

Three papers (Aptel 1988; Garcia & de Castro 2017; Soares 2012) presented a discrepancy between what "should be" and "what is" regarding risk assessment of cold exposure. Garcia and de Castro (2017) and Soares (2012) concluded that although labour legislations are clear regarding the obligatory use of PPE, the management regulations, and policies regarding PPE and what happened on the floor were not in line.

Soares (2012) highlighted that employees expressed a lack of training and knowledge to be able to use PPE properly and that these were not available nor used due to the equipment being uncomfortable. Aptel (1988) showed that workers usually wore their own clothes, and most women only covered 60% of their body due to the use of skirts or dresses, with no extra protection for the head and hands even if PPE covering 95% of the body was provided by the employer.

Six papers (Gao, Holmér & Abeysekera 2008; Griefahn 2000; Inaba, Kurokawa & Mirbod 2009; Jussila et al. 2017; Oliveira et al. 2014; Tirloni et al. 2018) studied differences between participants regarding sex and body mass index (BMI) while working in cold. Gao and colleagues (2008) concluded that the most frequent occurrence of injuries (slips, trips, and falls) was on ice covered with snow, and there was no statistically significant difference between men and women, but difficulty in perceiving hidden risks. Jussila et al. (2017) and Inaba, Kurokawa and Mirbod (2009) both reported that workers with low or normal BMI (<25 kg/m^2) selected higher clothing insulation, compared to workers with higher BMI, who appeared to have better natural insulation, giving them more efficient protection from cold exposure. Jussila et al. (2017) also found that female workers would select warmer clothing in dry cold conditions than men to be able to maintain thermal comfort, and Oliveira et al. (2014) concluded that women classified their work as more physically demanding than men, had a higher risk of detrimental health effects and felt colder and tolerated less cold than men. Tirloni et al. (2018) concluded that the provided PPE was not suitable for individual differences in fit and size, which made it harder for women to find appropriate protection. Griefahn (2000) emphasised the importance of improvement regarding sex aspects. The results confirmed that women had significantly lower clothing insulation for the same thermal conditions as their male colleagues. This limits the applicability of the current IREQ model, which does not consider sex.

ISO Standards and Method Development

Five papers (Table 1.2) had the main purpose of evaluating, developing, or proposing new assessment methods and ISO standards. Mäkinen et al. (2002) stated that ISO standards have been produced to assess the risk of thermal environment, but no instructions on how to apply them in practice have been described. Therefore, a three-step model was developed and practically tested, including a general health questionnaire, interviewing workers to find more in-depth limitations, and medical screening by occupational health and safety (OHS) personnel and health experts. Reiman, Sormunen and Morris (2016) on the other hand, developed a holistic evaluation tool for well-being in the Arctic mining environment, suggesting that the current tools were insufficient due to the increasing number of women in a previously male-dominated industry. Tsang et al. (2018) developed an artificial intelligence (AI) tool using fuzzy logic to assess product quality and occupational safety risks in cold chain activities. This study concluded that the developed user-friendly AI application would help management in decision-making processes to maintain the desired quality of products and reduce health risks and accidents.

Table 1.2. ISO standards and method development

References	Conclusion
Mäkinen et al. (2002)	The method was tested, and results showed that practical methods are needed in occupational settings to identify cold-related problems at work. Two- and three-step models were produced and assessed. A checklist was created to identify cold-related hazards.
Mäkinen & Hassi (2002)	To test the usability of the cold risk assessment methods from the different ISO thermal standards evaluations were done in two stages depending on the complexity, duration and need for expertise. Stage 1 tested workplace assessments, including observations and simple measurements. Results showed that the training provided was sufficient for performing this part of the assessment. Stage 2 was more laborious to perform, and conclusions were made that the provided training at this stage was not entirely sufficient, which was mostly related to difficulties in analysing the results.
Reiman, Sormunen & Morris (2016)	A systematic checklist was developed and evaluated, including sections for evaluating vehicle-specific ergonomic and safety aspects from a technological point of view and for checking if the work was arranged to be performed safely and effectively from an employee's point of view. Categories included working outside the cab (access, daily checks, refuelling), working inside the cab (size and design) and assessment of workload (physical, psychosocial, and social).
Risikko et al. (2003)	The developed method for cold risk assessment and management was easy to use after a one-day training session, and trained professionals could identify cold-related risks and preventive measures. The checklist and the cold work plan worked well. They were partially overlapping.
Tsang et al. (2018)	An Internet of Things based risk monitoring system for managing cold supply chain risks were developed and tested. Showing to provide a good foundation for identifying product quality and occupational safety risks. Workers' satisfaction and efficiency was improved, and cold-related accidents and injuries are reduced.

Two papers (Mäkinen & Hassi 2002; Risikko et al. 2003) focused on the usability of developed risk assessment methods, emphasising their importance. Risikko et al. (2003) stressed that having a usable and inexpensive cold risk management model would help employers follow international and national OHS legislations and norms. The results of the study by Mäkinen and Hassi (2002) showed that 88% found the use of written instructions and training adequate to identify cold-related hazards. However, when more in-depth risk analyses were needed at the workplace, most (62%) found that the assessment methods were unclear and very time-consuming. The study by Risikko et al. (2003) suggested that for a risk management plan to be successful, all responsible functions need to be named and familiar with the material, and plans should be documented in a written format to ensure the possibility of follow-up.

Risk Treatment

The objective of risk treatment is to select and implement suitable actions for addressing the assessed risk. To balance costs and benefits, the chosen methods need to be monitored, as well as quality, effectiveness, outcomes, and possible new risks reviewed (ISO 31000:2018). A total of eight papers had this focus and are presented below (Table 2).

Table 2. Risk treatment

References	Main conclusion
Anttonen & Niskanen (1995)	The use of infrared heaters can increase operative and skin temperature as well as improve thermal comfort.
Ceballos, Mead & Ramsey (2015)	Air draft at workstations, work practices, insufficient use of PPE due to dexterity concerns and lack of knowledge about safety practices, and good health in cold rooms were found as reasons for why cold room employees had thermal comfort concerns. The study presented practical recommendations for improvement.
Garcia & de Castro (2017)	Findings suggested the importance of job rotation to avoid long exposures to cold temperatures, the value of a designated individual to inform workers about company and community resources that promote healthy lifestyles, and the benefits of a joint worker–management safety committee.
Indreiten, Albrechtsen & Cohen (2018)	The authors concluded that to improve knowledge, each technician, system, and practice of experience feedback must be run to ensure individual and organizational learning from both failures as well as successes. The purpose is to use information about experienced or expected safety performance as a basis for decisions that prevent accidents and reduce accident risk. The experience feedback system facilitated systematic improvements in safety. Key concepts were flexibility, resilience (anticipating, monitoring, responding, and learning), and adaptation (context, goals, resources). Organizational learning and knowledge sharing between practitioners, safety staff, and management were also important.
Naesgaard et al. (2017)	Considering user needs and involving the users throughout the design process contributed to new cold-protective clothing with an improved level of user satisfaction. Users needed protection against wind and external moisture, efficient temperature regulation, thermal protection during stationary work, and an unrestricted range of movement. The final product was evaluated in a thermal chamber and found to provide sufficient thermal protection.
Noroozi et al. (2014)	The results showed that the risk value related to the effect of cold and harsh environments on operator cognitive performance was twice as high as the risk value when performed in thermoneutral conditions. The findings confirmed that reevaluating the human error probabilities (HEPs) is required for any scenario in harsh environments and that cold and harsh conditions influence human performance, attention, decision-making, diagnosing, memory, and problem-solving.
Risikko, Remes & Hassi (2008)	Implementation of good practices succeeded well. At the action level, positive changes in concrete cold risk prevention activities were found. However, at the organizational level, there were no improvements in rules and practices. To improve the outcome, implementation goals should be set early, rules, practices, and concrete activities need to be implemented early and visible for improved awareness and motivation. Ownership of the implementation process should be updated with possible organisational changes.
Tirloni et al. (2017)	A significant association could be seen between the thermal sensation and the use of a knife. Workers using a knife felt the coldest. The hand that manipulated the products had the lowest temperatures. Employers should provide gloves with adequate thermal insulation.

Seven of the papers (Anttonen & Niskanen 1995; Ceballos, Mead & Ramsey 2015; Garcia & de Castro 2017; Naesgaard et al. 2017; Noroozi et al. 2014; Soares 2012; Tirloni et al. 2017) emphasised that the different measures for assessing cold-related risks need to be usable and flexible to manage the different types of exposure and associated risks.

Anttonen and Niskanen (1995) showed that a local heater at fixed workplaces was effective in maintaining thermal comfort for the workers. To be able to provide products that are relevant, attractive, and practical for the workers, Naesgaard and colleagues (2017) proposed a user-centred approach where feedback and assessments were conducted by the end-users. Tirloni et al. (2017) emphasised the need for employers to regularly replace PPE as wear and tear decreases their insulation properties and general function. Also, job rotation for the different thermal tasks could be used to increase thermal comfort and performance. In addition, workers' health conditions should be regularly monitored by health professionals. Ceballos, Mead & Ram-

sey (2015) gave recommendations to a company that had no training or safety policies regarding working in cold rooms. The applied improvements included minimising drafts and time spent inside cold rooms, creating adequate conditions for thermal breaks, providing hand warmers and sufficient PPE, and providing training regarding the hazards of cold exposure. Noroozi et al. (2014) identified psychosocial factors that could improve the work environment in cold workplaces, including emotional stability, teamwork, morale, personal training, and attitudes. They also emphasised the importance of job rotation to reduce long exposure to cold environments. Lastly, they highlighted the value of specific individuals who could inform other workers about company and community resources that promote healthy lifestyles, such as a joint worker–management safety committee, encouraging health and safety training regarding cold exposure. Soares (2012) pointed out that an efficient safety system from policy to practice is essential to be able to create awareness and have frequent training sessions on how to use PPE properly.

Two papers (Indreiten, Albrechtsen & Cohen 2018; Risikko, Remes & Hassi 2008) highlighted the importance of how to successfully implement and improve good practices. Indreiten, Albrechtsen and Cohen (2018) concluded that to ensure constant and safe work performance, a system needs to be in place where experience and feedback are ministered and protected, otherwise the knowledge will disappear together with workers. This concept included a system where experience feedback was transferred from individual knowledge to organisational learning. Flexibility, resilience (anticipating, monitoring, responding, learning), and adaptation (context, goals, resources) were essential key concepts for the systematic management approach. To make structural changes, constant feedback (positive and negative) from the fieldwork and the opportunity to gain experience from each other was needed. The study by Risikko, Remes and Hassi (2008) showed that the quality and availability of PPE, access to local heating, as well as awareness regarding occupational health and safety, were rather easy to improve within the workplace. However, implementing rules, instructions, and training was insufficient even after the project was completed. Hence, it was concluded that it was important to establish practice and knowledge on organisational levels, have adequate attitudes among managers, co-ordinate training, and determine ownership of responsibility to succeed with implementation.

Discussion

Our scoping review collected for the first time the available research findings concerning cold risk management practices for workplaces. From the 25 papers included in this review, two focus points were clearly outlined. Firstly, most previous literature focused on theoretical cold risk assessment where the authors emphasised that current practices were not adequate. Secondly, most papers in this review focused solely on low ambient temperature, without taking into consideration the effects of other parameters such as moisture and wind, which could limit the understanding of the full complexity of the risks.

Evaluation of Personal Protective Equipment

One of the prominent topics was thermal comfort, personal protective equipment, and clothing. We identified several knowledge gaps concerning worker protection

and the lack of comfort as well as the prevention of health risks. Even though employees used the provided equipment, the insulation did not seem to be enough. The lack of insulation left workers either cold or in need of more layers, which in turn challenged their motor functions and dexterity. In the papers included in this review, the process of acclimatisation did not seem to be a determining factor. Rather, the consistency of current practices was insufficient, as observed in the study by Tirloni et al. (2018) which described gloves that still left workers' hands cold. Also, the study of Golbabaei et al. (2022) showed that available clothes did not provide sufficient protection against general whole-body cooling, putting workers at risk for cold injuries.

The IREQ model presented by Holmér (1984) was a commonly used tool in the included studies. However, as several papers concluded (Aptel 1988; Griefahn 2000; Griefahn & Forsthoff 1997), the model does not consider differences in sex or body constitution, nor the effects of wear and tear on clothing insulation properties (Alfano, Palella & Riccio 2013). The frequency of changing clothing ensembles or washing them was not adequately considered in any of the included papers. What also needs to be highlighted is the fact that the IREQ model has only been tested and validated on men. Therefore, an update of the IREQ model is warranted.

There appear to be knowledge gaps concerning the effect of biological sex. About half of the included papers stated the participants' sex, and a clear division between occupational sectors was seen. Most of the female representation occurred in indoor artificially cooled environments and male-dominated samples represented outdoor labour. Yet, none of the included papers raised this issue or discussed differences in management levels regarding protective measures. One potential concern is that PPE was not suitable and fitted to female workers. Questions also arose regarding whether research on individual differences has been delayed due to the long-term male domination in outdoor labour. The implementation of user-friendly PPE for workers also appeared to be insufficiently investigated. Only Naesgaard et al. (2017) evaluated user-centred design for cold protective clothing, but only for male workers. Due to the lack of actual practice in the workplaces and co-created solutions together with the users, knowledge gaps will exist in how cold-protective PPE is usable for specific work tasks, alone or together with other PPE. For example, cold protective clothing may interfere with PPE used for other workplace hazards, such as respiratory and hearing protection (Jussila et al. 2017).

This review also found a discrepancy between what "should be" and "what is." Even though policies and legislation were in place, the workers did not appear to follow them. Employees seemed not to be given enough support for maintaining thermal comfort. In this context, limited knowledge regarding protection and risk management may increase the risk of malpractices, which in turn can increase health risks and decrease efficiency (Mäkinen & Hassi 2002).

ISO Standards and Method Development

The papers regarding method development were technically oriented and hard to implement in the workplace. Even though several authors emphasised the importance of the evaluated tools, few were tested on occupational groups. The usability was only considered in two papers (Mäkinen & Hassi 2002; Risikko et al. 2003). Only the basic (first-level) cold risk identification was considered feasible, while the more advanced

risk analyses required special expertise and instrumentation (Mäkinen & Hassi 2002). In addition, there is a need to further develop these methods, taking into consideration the changing climate, development of sustainable industries, and associated emerging occupational health risks.

Risk Treatment

In this review, barely a third of the papers focused on risk treatment and what comes after the risk assessment. Even though there were some recommendations on how cold risks could be mitigated, none considered interindividual differences. Neither did they mention the societal norms and gender dynamics within organisational levels, nor focus on other types of organisational issues such as scheduling or recovery time. Only two papers conducted in Portugal (Oliveira et al. 2014; Raimundo et al. 2015) collected data regarding the duration of breaks and found that almost half of all workers had no rest periods. Two papers (Indreiten, Albrechtsen & Cohen 2018; Risikko, Remes & Hassi 2008) brought up the importance of and difficulties in implementing interventions to decrease or handle cold exposure within an organisation. Risikko, Remes and Hassi (2008) stated that even though a good management method could be in place, for a new implementation process to be successful, management support, personnel participation, and acceptance are essential for changing already existing practices and cultures. Indreiten, Albrechtsen and Cohen (2018) added to this that flexibility, resilience, and adaptation are essential key concepts for the systematic management approach.

Other Considerations

Holmér (2001) stated that a good risk assessment tool has the purpose of systematically analysing and defining possible risks by assessing the type and dose of the exposure, which effects occur, how these and different types of exposures relate to each other and consider the individual variations. To assist employers, the International Organisation of Standardization (ISO) is constantly developing and renewing its output of standards. The (ISO 15743:2008), *Ergonomics of the thermal environment. Cold workplaces. Risk assessment and management* was developed to aid employers and OHS services in mitigating health risks among cold-exposed workers. However, this standard does not appear to have been updated in recent years and the ISO has not been able to provide any data on the actual usage of the standard. It thereby raises concern about to what extent the standard is used, what is needed for improvements, or if the right target groups have been pinpointed. The ISO 11079:2007 includes calculations on required clothing insulation, exposure duration and recovery time, which are all interesting to consider in cold workplaces. However, even though most standards can be used independently, to achieve a comprehensive workplace assessment, they should be used in conjunction with one another (Golbabaei et al. 2022). As Olesen (1995) emphasised, it is important to remember that these documents are not everlasting, as information and procedures may change, and international standards are frequently updated and validated. Also, new standards are developed. Even though updating and renewing are important, it also becomes difficult for users to keep track of the most recent revisions of instructions and guidance for their use. As Alfano, Palella and Riccio (2013) pointed out, the described models in different ISO standards

also have several errors and inconsistencies leading to implementation problems.

What should also be emphasised is the fact that only the Nordic countries and Russia have participated in collaborative research over country borders. Risk management practices seem to differ widely between countries, leaving gaps regarding how general (global) standards and methods would perform in other cross-border contexts. Also noted is the lack of newly collected data in the included papers. In our literature search, the last stated year of data collection was 2013, making recent changes in practice hard to identify.

Methodological Considerations

This review started with thousands of references to screen, making systematic criteria and processes important. Grey literature was thereby excluded to focus on scientific papers. Hence, there is a risk that important perspectives for cold risk management were lost in this process. The search string, although comprehensive, might also have lacked certain terms that would have resulted in finding additional relevant literature, for instance regarding studies on wind effects, acclimatisation, and cold risk warning tools. A systematic procedure with the support of the software Covidence enabled blinded assessment by several reviewers, limiting any potential subjective biases in the selection process. Our literature search was limited to papers written in English and the Nordic languages and published after 1980. Therefore, there is a risk that important research conducted earlier or in other parts of the world might have been omitted. From the search string used in this review, dozens of review articles were identified and excluded (Fig. 1). It is striking that there were more review articles found than actual original research articles within the field. Finally, our scoping review included papers with a large variety of methodological approaches, hence, no assessment regarding risk of bias was performed. However, our general impression of the literature was that the study samples were in general small, biological sex was not considered, the studies did not involve prospective designs, and only presented crude measures of both exposure and outcome.

Implications for the Future

This review has identified several knowledge gaps in the field of cold risk management. One important aspect to emphasise is the co-creation and implementation of solutions within the organisations and among workers commonly exposed to cold conditions. Climate change will likely result in more severe weather events, such as heat waves, cold spells, and storms. In addition, the variability of weather will likely increase, challenging preparedness. This calls for more research about the adaptive capacity of organisations regarding workers' protection and health. In the future, cold exposure may also occur in combination with novel physical workplace exposures such as high-frequency vibration, nanomaterials, and heavy or rare metals. Therefore, research, method development and standardisation need to continue at a steady pace to maintain updated practices for both employers and specialists within occupational health and safety. Finally, there should be more focus on individual differences among workers regarding the efficacy of preventive measures, especially on female workers, as most previous research has been conducted on men.

Conclusion

The previous literature on risk management of cold work was mainly oriented around technical risk assessment. However, there seems to be a lack of knowledge regarding implementation, resulting in inadequate protection for workers. Moreover, research is scarce regarding sex-dependent differences in risk management among workers exposed to cold. These identified knowledge gaps warrant further high-quality investigations.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

Alfano, F.R.D., Palella, B.I. & Riccio, G. (2013). "Notes on the implementation of the IREQ model for the assessment of extreme cold environments," *Ergonomics*, 56:4, pp. 707–724.

Anttonen, H. & Niskanen, J. (1995). "Prevention of the adverse health effects of cold by using infrared heaters," *Arctic Medical Research*, 54:2, pp. 55–59.

Anttonen, H. & Virokannas, H. (1994). "Assessment of cold stress in outdoor work," *Arctic Medical Research*, 53:1, pp. 40–48.

Aptel, M. (1988). "Comparison between required clothing insulation and the actually worn by workers exposed to artificial cold," *Applied Ergonomics*, 19:4, pp. 301–305.

Bjertnaes, L.J., Naesheim, T.O., Reierth, E., Suborov, E.V., Kirov, M.Y., Lebedinskii, K.M. & Tveita, T. (2022). "Physiological changes in subjects exposed to accidental hypothermia. An update," *Frontiers in Medicin* (Lausanne), 9; https://doi.org/10.3389/fmed.2022.824395; accessed on 21 April 2023.

Castellani, J.W. & Young, A.J. (2016). "Human physiological responses to cold exposure. Acute responses and acclimatization to prolonged exposure," *Autonomic Neuroscience*, 196; https://doi.org/10.1016/j.autneu.2016.02.009; accessed on 20 Nov. 2022.

Ceballos, D., Mead, K. & Ramsey, J. (2015). "Recommendations to improve employee thermal comfort when working in 40 degrees F refrigerated cold rooms," *Journal of Occupational and Environmental Hygiene*, 12:9; https://doi.org/10.1080/15459624.2015.1047023; accessed on 29 May 2023.

Falla, M., Micarelli, A., Hüfner, K. & Strapazzon, G. (2021). "The effect of cold exposure on cognitive performance in healthy adults. A systematic review," *International Journal of Environmental Research and Public Health*, 18:18; https://doi.org/10.3390/ijerph18189725; accessed on 25 Nov. 2022.

Friedman, L.S., Abasilim, C., Fitts, R. & Wueste, M. (2020). "Clinical outcomes of temperature related injuries treated in the hospital setting, 2011–2018," *Environmental Research*, 189; https://doi.org/10.1016/j.envres.2020.109882; accessed on 28 Nov. 2022.

Gao, C., Holmér, I. & Abeysekera, J. (2008). "Slips and falls in a cold climate. Underfoot surface, footwear design and worker preferences for preventive measures," *Applied Ergonomics*, 3:3, pp. 385–391.

Garcia, G.M. & de Castro, B. (2017). "Working conditions, occupational injuries, and health among Filipino fish processing workers in Dutch Harbor, Alaska," *Workplace Health & Safety*, 65:5; https://doi.org/10.1177/21650799166653; accessed on 29 May 2023.

Gavhed, D. (2008). "Arbete i kyla och värme" ['Work in cold and heat'], in *Arbetslivsfysiologi*, eds. A. Toomingas, S.E. Mathiassen & E. Wigaeus Tornqvist, Lund: Studentlitteratur, pp. 307–346.

Giesbrecht, G.G., Arnett, J.L., Vela, E. & Bristow, G.K. (1993). "Effect of task complexity on mental performance during immersion hypothermia," *Aviation, Space, and Environmental Medicine*, 64, pp. 206–211.

Golbabaei, F., Azrah, K., Goodarzi, Z., Ahmadi, O. & Karami, E. (2022). "Risk assessment of cold stress in petroleum transfer station in the northwestern regions of Iran. Subjective and field measurements," *Journal of Thermal Biology*, 110; https://doi.org/10.1016/j.jtherbio.2022.103335; accessed on 29 May 2023.

Griefahn, B. (2000). "Limits of and possibilities to improve the IREQ cold stress model (ISO/TR 11079). A validation study in the field," *Applied Ergonomics*, 31:4, pp. 423–431.

Griefahn, B. & Forsthoff, A. (1997). "Technical note. Comparison between estimated worn clothing insulation and required calculated clothing insulation in moderately cold environments (0 degree C < or = ta < or = +15 degrees C)," *Applied Ergonomics*, 28:4, pp. 295–299.

Hassi, J., Mäkinen, T.M., Holmér, I., Påsche, A., Risikko, T. & Toivonen, L. (2002). *Handbok för kallt arbete* ['Handbook for coldwork'], Oulu: Arbetslivsinstitutet.

Hassi, J., Raatikka, V.P. & Huurre, M. (2003). "Health-check questionnaire for subjects exposed to cold," *International Journal of Circumpolar Health*, 62:4; https://doi.org/10.3402/ijch.v62i4.17587; accessed on 25 Nov. 2022.

Havenith, G., Heus, R. & Daanen, H.A. (1995). "The hand in the cold, performance and risk," *Arctic Medical Research*, 54:2, pp. 37–47.

Holmér, I. (1984). "Required clothing insulation (IREQ) as an analytical index of cold stress," *ASHRAE Transactions,* 90:1B, pp. 1116–1128.

Holmér, I. (1993). "Work in the cold. Review of methods for assessment of cold exposure," *International Archives of Occupational and Environmental Health*, 65:3; https://doi.org/10.1007/BF00381150; accessed on 20 Nov. 2022.

Holmér, I. (2001). "Assessment of cold exposure," *International Journal of Circumpolar Health*, 60:3, pp. 413–421.

Ikäheimo, T.M., Kuklane, K., Jaakkola, J.J.K. & Holmér, I. (2021). "Cold stress," in *Patty's Industrial Hygiene* 3, ed. B. Cohrssen, Hoboken: John Wiley & Sons Inc, pp. 189–217.

Inaba, R., Kurokawa, J. & Mirbod, S.M. (2009). "Comparison of subjective symptoms and cold prevention measures in winter between traffic control workers and construction workers in Japan," *Industrial Health*, 47:3, pp. 283–291.

Indreiten, M., Albrechtsen, E. & Cohen, S.M. (2018). "Field operations in the high arctic-experienced feedback and tacit knowledge as key tools for safety management," in *Safety and Reliability. Safe Societies in a Changing World*, eds. S. Haugen, A. Barros, C. Gulijk, T. Kongsvik & J.E. Vinnem, London: CRC Press, pp. 1939–1945.

ISO = International Organization for Standardization 11079:2007. *Ergonomics of the thermal environment. Determination and interpretation of cold stress when using required clothing insulation (IREQ) and local cooling effects*, Switzerland: ISO.org.

ISO = International Organization for Standardization 15743:2008. *Ergonomics of the thermal environment. Cold workplaces. Risk assessment and managemen*t, Switzerland: ISO.org.

ISO = International Organization for Standardization 31000:2018. *Risk management*. Guidelines, Switzerland: ISO.org.

Jussila, K., Rissanen, S., Aminoff, A., Wahlström, J., Vaktskjold, A., Talykova, L., Remes, J., Mänttäri, S. & Rintamäki, H. (2017). "Thermal comfort sustained by cold protective clothing in Arctic open-pit mining. A thermal manikin and questionnaire study," *Industrial Health*, 55:6, pp. 537–548.

Kummu, M. & Varis, O. (2011). "The world by latitudes. A global analysis of human population, development level and environment across the north–south axis over the past half century," *Applied Geography*, 31:2, pp. 495–507.

Mäkinen, T.M. & Hassi, J. (2002). "Usability of isothermal standards for cold risk assessment in the workplace," *International Journal of Circumpolar Health*, 61:2; https://doi.org/10.3402/ijch.v61i2.17447; accessed on 23 Nov. 2022.

Mäkinen, T.M. & Hassi, J. (2009). "Health problems in cold work," *Industrial health*, 47:3; https://doi.org/10.2486/indhealth.47.207; accessed on 23 Nov. 2022.

Mäkinen, T.M., Hassi, J., Pasche, A., Abeysekera, J. & Holmér, I. (2002). "Project for developing a cold risk assessment and management strategy for workplaces in the Barents region," *International Journal of Circumpolar Health*, 61:2, pp. 136–141.

Mäkinen, T.M., Raatikka, V.P., Rytkönen, M., Jokelainen, J., Rintamäki, H., Ruuhela, R., Näyhä, S. & Hassi, J. (2006). "Factors affecting outdoor exposure in winter. Population-based study," *International Journal of Biometeorology*, 51:1, pp. 27–31.

Naesgaard, O.P., Storholmen, T.C.B., Wiggen, O.N. & Reitan, J. (2017). "A user-centred design process of new cold-protective clothing for offshore petroleum workers operating in the Barents Sea," *Industrial Health*, 55:6, pp. 564–574.

Noroozi, A., Abbassi, R., MacKinnon, S., Khan, F. & Khakzad, N. (2014). "Effects of cold environments on human reliability assessment in offshore oil and gas facilities," *Human Factors*, 56:5; https://doi.org/10.1177/0018720813512328; accessed on 29 May 2023.

Olesen, B.W. (1995). "International standards and the ergonomics of the thermal environment," *Applied Ergonomics*, 26:4, pp. 293–302.

Oliveira, A.V., Gaspar, A.R. & Quintela, D.A. (2008). "Occupational exposure to cold thermal environments. A field study in Portugal," *European Journal of Applied Physiology*, 104:2, pp. 207–214.

Oliveira, A.V., Gaspar, A.R., Raimundo, A.M. & Quintela, D.A. (2014). "Evaluation of occupational cold environments. Field measurements and subjective analysis," *Industrial Health*, 52:3, pp. 262–274.

Parsons, K. (2021). *Human Cold Stress*, Boca Raton: CRC Press.

Raimundo, A.M., Oliveira, A.V., Gaspar, A.R. & Quintela, D.A. (2015). "Thermal conditions in freezing chambers and prediction of the thermophysiological responses of workers," *International Journal of Biometeorology*, 59:11, pp. 1623–1632.

Reiman, A., Sormunen, E. & Morris, D. (2016). "Ergonomics in the Arctic. A study and checklist for heavy machinery in open pit mining," *Work. A Journal of Prevention Assessment & Rehabilitation*, 55:3, pp. 643–653.

Risikko, T., Mäkinen, T.M., Pasche, A., Toivonen, L. & Hassi, J. (2003). "A model for managing cold-related health and safety risks at workplaces," *International Journal of Circumpolar Health*, 62:2, pp. 204–215.

Risikko, T., Remes, J. & Hassi, J. (2008). "Implementation of cold risk management in occupational safety, occupational health and quality practices. Evaluation of a development process and its effects at the Finnish maritime administration," *International Journal of Occupational Safety and Ergonomics*, 14:4, pp. 433–446.

Soares, E.B. (2012). "Organizational issues that impact on non-use of equipment for individual protection. A view of ergonomics," *Work*, 41:1, pp. 2668–2674.

Stjernbrandt, A. (2021). *Cold Exposure and Health. A Study on Neurological and Vascular Hand Symptoms in Northern Sweden*, diss., Umeå: Umeå University; https://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-182187; accessed on 20 Jan. 2023.

Stocks, J.M., Taylor, N.A., Tipton, M.J. & Greenleaf, J.E. (2004). "Human physiological responses to cold exposure," *Aviation, Space, and Environmental Medicine*, 75:5, pp 444–457.

Swedish Work Environment Authority (2022). *The Work Environment 2021* (report 2022:2), Swedish Work Environment Authority; https://www.av.se/globalassets/filer/statistik/arbetsmiljon-2021/arbetsmiljostatistik-arbetsmiljon-2021-rapport-2022-2.pdf; accessed on 3 Feb. 2024.

Tirloni, A.S., Reis, D.C.D., Dias, N.F. & Moro, A.R.P. (2018). "The use of personal protective equipment. Finger temperatures and thermal sensation of workers' exposure to cold environment," *International Journal of Environmental Research and Public Health*, 15:11; https://doi.org/10.3390/ijerph15112583; accessed on 14 May 2023.

Tirloni, A.S., Reis, D.C.D., Ramos, E. & Moro, A.R.P. (2017). "Thermographic evaluation of the hands of pig slaughterhouse workers exposed to cold temperatures," *International Journal of Environmental Research and Public Health*, 14:8; https://doi.org/10.3390/ijerph14080838; accessed on 30 March 2023.

Tricco, A.C., Lillie, E., Zarin, W., O'Brien, K.K., Colquhoun, H., Levac, D., Moher, D., Peters, M.D.J., Horsley, T., Weeks, L., Hempel: S., Akl, E.A., Chang, C., McGowan, J., Stewart, L., Hartling, L., Aldcroft, A., Wilson, M.G., Garritty, C. & Straus, S.E. (2018). "PRISMA Extension for scoping reviews (PRISMA-ScR). Checklist and explanation," *Annals of Internal Medicin*, 169:7; https://doi.org/10.7326/M18-0850; accessed on 31 Oct. 2022.

Tsang, Y.P., Choy, K.L., Wu, C.H., Ho, G.T.S., Lam, C.H.Y. & Koo, P.S. (2018). "An internet of things (IoT)-based risk monitoring system for managing cold supply chain risks," *Industrial Management & Data Systems*, 118:7; https://doi.org/10.1108/IMDS-09-2017-0384; accessed on 15 May 2023.

SUPPLEMENTARY DATA 1.
LITERATURE SEARCH FOR THE SCOPING REVIEW

SEARCH STRING #1—COLD ENVIRONMENT

exp cold/ OR Cold temperature*.ti,ab,kw. OR Low temperature*.ti,ab,kw. OR Freezing .ti,ab,kw. OR Cold environment*.ti,ab,kw. OR Cold condition*.ti,ab,kw. OR exp extreme cold weather/ OR Extreme cold. ti,ab,kw. OR (Cold* adj3 Wet*).ti,ab,kw. OR (Cold* adj3 damp*).ti,ab,kw. OR (Cold* adj3 Rain*).ti,ab,kw. OR (Cold* adj3 Snow*).ti,ab,kw. OR exp cold climate/ OR Cold climate*.ti,ab,kw. OR Polar region*.ti,ab,kw. OR Antarctic*.ti,ab,kw. OR (Cold adj3 stress).ti,ab,kw. OR Sub-zero.ti,ab,kw. OR Below zero.ti,ab,kw. OR Cold work*.ti,ab,kw. OR Cold related.ti,ab,kw. OR Winter weather.ti,ab,kw. OR Cold weather.ti,ab,kw. OR (Work* adj3 Cold).ti,ab,kw. OR Cold exposure.ti,ab,kw. OR exp Arctic/ OR Arctic.ti,ab,kw. OR (low adj3 temperature*).ti,ab,kw. OR Wind chill.ti,ab,kw. OR Circumpolar.ti,ab,kw. OR Contact cooling.ti,ab,kw. OR Cold object*.ti,ab,kw.

and

SEARCH STRING #2—WORK-RELATED
exp occupation/ OR Industr*.ti,ab,kw. OR exp employment/ OR employment*.ti,ab,kw. OR exp occupational exposure/ OR (Work* adj3 environment*).ti,ab,kw. OR Occupational exposure*.ti,ab,kw. OR Work related.ti,ab,kw. OR Job related.ti,ab,kw. OR Employe*.ti,ab,kw. OR exp workplace/ OR Workplace*.ti,ab,kw. OR Work place*.ti,ab,kw. OR Occupational.ti,ab,kw. OR exp work/ OR job .ti,ab,kw. OR exp army/ OR military.ti,ab,kw. OR exp personnel/ OR labo?r.ti,ab,kw. OR Defence force.ti,ab,kw. OR air force.ti,ab,kw. OR conscript*.ti,ab,kw. OR navy.ti,ab,kw.

and

SEARCH STRING #3—RISK PLANNING
exp risk assessment/ OR Risk Assessment*.ti,ab,kw. OR Safety analys*.ti,ab,kw. OR risk adjustment*.ti,ab,kw. OR Risk Analys*.ti,ab,kw. OR Risk-Benefit Assessment*.ti,ab,kw. OR exp risk management/ OR Risk* Management*.ti,ab,kw. OR Risk Reporting*.ti,ab,kw. OR Risk Report*.ti,ab,kw. OR Incident* Report*.ti,ab,kw. OR Preventive measure*.ti,ab,kw. OR exp occupational safety/ OR occupational safety.ti,ab,kw. OR exp protective clothing/ OR Insulation clothing*.ti,ab,kw. OR exp health care planning/ OR Health Planning Guideline*.ti,ab,kw. OR (Guideline* adj3 Health Plan*).ti,ab,kw. OR Health Planning Recommendation*.ti,ab,kw. OR exp practice guideline/ OR guideline*.ti,ab,kw. OR ISO.ti,ab,kw. OR Occupational safety plan*.ti,ab,kw. OR Occupational health care plan*.ti,ab,kw. OR Primary prevent*.ti,ab,kw. OR Secondary prevent*.ti,ab,kw. OR exp accident prevention/ OR Injur* prevent*.ti,ab,kw. OR exp safety/ OR Code of practic*.ti,ab,kw. OR Threshold limit*.ti,ab,kw. OR Legislation*.ti,ab,kw. OR Intervention*.ti,ab,kw. OR Standard*.ti,ab,kw. OR guide*.ti,ab,kw. OR prevent*.ti,ab,kw.

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SOPHIE KOLMODIN & OLOF OSCARSSON

Rural Risk and Disaster Management from a Relational Approach

Insights from Northern Sweden

ABSTRACT This article emphasizes the significance of relational concepts in understanding Disaster Management (DM) in rural areas. Specifically, we turn to the concepts of relational place and peripheralization to illustrate how places derive meaning from their relationships with other places and argue for a deeper understanding of how these dynamics influence DM professionals' experiences of their work and of peripheralization. Despite extensive research on DM, place is often treated as a neutral backdrop rather than as an active agent that shapes professionals' work. To explore the role of place in DM, we draw on interviews with professionals from four municipalities in northern Sweden, characterized by expansive geographies, declining populations, and a decreasing tax base. By employing the concept of relational place, we show how DM professionals perceive laws and regulations as ill-adapted to their contexts and their work as diverging from broader societal norms. We also illustrate how feelings of peripheralization, understood as a process rather than a static condition, are linked to the political, financial, and social dimensions of DM. Through this article, we aim to broaden the discourse on DM by providing insights into the unique challenges faced in rural contexts, emphasizing how these intersect with professionals' understandings of place.

KEYWORDS Disaster Management, relational place, peripheralization, rurality, Sweden

Introduction

Researchers in the field of Disaster Management (DM) have long emphasized the specific challenges faced by DM professionals (Dynes 1994; Kapucu & Hu 2016; Kusumasari, Alam & Siddiqui 2010), the impact of disasters on vulnerable groups (Orru et al. 2022; Howard et al. 2017), the critical role of local knowledge in crisis management (Hirono & Nurdin 2024), and how access to resources, such as financial capital, influences the ability to address DM-related issues (Kapucu, Hawkins & Rivera 2013; Sadri et al. 2018). This research includes both rural and urban areas in the Global North and Global South.

In this study, we adopt a broad understanding of DM as encompassing the strategies and initiatives implemented by governmental bodies and various professionals to manage, proactively address and recover from catastrophic events and emergencies. These efforts encompass a broad spectrum of activities, from preparing for and planning for severe events to effectively managing and recovering from those that occur (Sparf 2014).

However, while this body of research has greatly advanced our understanding of DM, it has often treated place as a neutral or secondary factor, even if some conclude that DM needs to be embedded in local knowledge on how to best cope with hazards and risk in the specific local context (De Majo & Olsson 2019). Further, studies commonly view the context in which disasters occur primarily as an empirical backdrop for analyzing the physical and social impacts of disasters (e.g., Cox & Hamlen 2015; Haase et al. 2021). Put differently, place is often framed simply as the location of events such as floods (Bosoni, Tempels & Hartmann 2021), wildfires (Johansson et al. 2018), or terrorist attacks (Kendra & Wachtendorf 2016), without deeper integration of how place itself shapes DM efforts (see Kvarnlöf & Eriksson 2024 for one exception). These approaches overlook the complex ways in which the understanding of place, including local histories, spatial inequalities, and power relations, influences DM professionals' understanding of DM practice.

The lack of place perspectives is puzzling given that studies on community resilience (McElduff & Ritchie 2018), voluntary work (Nilsson 2021) and community attachment (Yarker, Doran & Buffel 2023) often include how the given place shapes these aspects. Previous research, which has mainly viewed place merely as a site for collecting empirical data or as a neutral backdrop, thereby limits our understanding of DM and provides an oversimplified view of how the real world operates (Fuller & Löw 2017). Following others who have emphasized the importance of understanding the relational aspects of place (e.g., Massey 2005; Kolmodin 2025b), we argue that place should be understood as more than an empirical backdrop and should be explicitly included in studies of DM. Hence, in this article, we set a relational perspective at the forefront. This includes understanding place as a relational construction (Massey 2005); that is, as constituted through its relations to other entities, such as other places, networks, events, individuals, politics, and the social relations that exist within and extend beyond places (Guma et al. 2019; Heley & Jones 2012; Massey 2005; Pierce, Martin & Murphy 2011). Consequently, the meaning of a given place might differ for individuals (Kolmodin 2025a). Following a relational perspective, we also build on Kühn's (2015) understanding of peripheries as relational, as something experienced

and continuously in process, that is, peripheralization to use Kühn's term. In short, we argue that DM work is never experienced or conducted in isolation but rather shaped by its interaction with the unique characteristics of different places, including the feelings and subjective understandings associated with them. Theoretically, that means we do not view the included places as ontological stances or empirical backgrounds, but rather as social agents actively influencing DM professionals' work. As argued by Martin (2004), it is crucial to research how places appear in the discourse of organizing and why. Therefore, we want to contribute to the understanding of challenges that DM professionals face and experience.

Based on the above argument concerning the importance of place as something more than an empirical background, we aim to *develop a deeper understanding of how place shapes DM professionals' understanding of DM practices*. We pursue this aim through two research questions:

- How does place influence the professional experience and practice of DM in rural areas?
- How does peripheralization shape the way DM is constructed and done?

We demonstrate the value of this theoretical approach through a study of DM in four municipalities in rural northern Sweden. These municipalities are among the most sparsely populated regions in Europe, making them suitable empirical examples for studying different expressions of place in rural DM. Furthermore, these municipalities have historically been subjected to what others have called chronic crisis (Kvarnlöf 2022; Stienstra 2015) with longstanding economic cuts in welfare-related services. The rest of the paper is structured accordingly. Next, we discuss previous research on DM, including the limitations of earlier studies. We then present the research context, where we also motivate our selection of municipalities and describe those included in the study. This is followed by the theoretical framework and methods section. We subsequently present our main findings, followed by a broader discussion and a conclusion.

Structural Challenges for Rural Disaster Management

The fact that rural areas pose distinct challenges compared to their urban counterparts is well-established, particularly in fields such as regional development, welfare provision, and public service delivery (Carson, Carson & Argent 2022; Große 2024; Huskey 2005). These differences are not merely demographic or geographic; they are structural, institutional, and discursive (Lundgren 2020). In the context of DM, such distinctions become especially salient, as rural areas are often characterized by sparse populations, vast territories, long response times, and limited access to critical infrastructure (Adam-Hernández & Harteisen 2020; Kapucu, Hawkins & Rivera 2013; Kvarnlöf 2022). These features shape both the risks rural communities face and their capacity to respond. In general, the rural–urban divide in DM has been discussed in terms of resource asymmetries, rural municipalities often are described as having fewer financial and human resources, which constrain their ability to engage in proactive risk reduction or fulfil formal preparedness requirements (Kapucu, Hawkins & Rivera 2013; Oscarsson et al., forthcoming). These challenges are compounded by

the ongoing decline of public services in rural areas. While local communities are increasingly expected to take on broader responsibilities for DM and public safety, they are doing so without any corresponding increase in resources, and often with significantly reduced capacity (Kvarnlöf & Eriksson 2024).

At the same time, rural areas should not be seen as incomplete or less developed versions of cities. They exhibit unique strengths and vulnerabilities shaped by their spatial, social, and institutional contexts. Rural DM is often rooted in informal networks, voluntary engagement, and strong local knowledge, which serve as vital resources during crises (Kvarnlöf 2022; Kvarnlöf & Eriksson 2024; Kelman, Mercer & Gaillard 2012; Oscarsson et al. forthcoming). However, such strengths are rarely recognized in national policy frameworks, which tend to be designed with urban systems in mind (Cutter, Ash & Emrich 2016). As a result, rural communities frequently find themselves navigating preparedness and response within a governance model that does not fully align with their lived realities.

Moreover, many rural areas, particularly those considered peripheral, are affected by long-term structural changes, such as depopulation, welfare retrenchment, and limited political influence (Nilsson 2021). These dynamics not only impact local risk profiles but also shape how disasters are experienced and governed. The assumption that national crisis management systems can be uniformly applied across space overlooks the situated nature of DM and the importance of place in shaping governance practices (Cutter, Ash & Emrich 2016).

Thus, to understand DM in rural areas, it is not sufficient to treat rurality as a background condition. Instead, it must be seen as a defining feature for how tasks related to DM are constructed and enacted. This requires theoretical and empirical attention to the relational dimensions of place and the processes through which certain areas are rendered marginal or "peripheral" in both discourse and institutional practice.

Theoretical Departure

In this article, we shift the focus from how DM professionals describe their work and motivations to how the places they inhabit influence and shape their understanding of DM practices, including their challenges. To do so, we adopt a theoretical lens that conceptualizes place and peripheries as relational and processual in line with previous work on relational place (Cretney & Bond 2017; Kolmodin 2025a; Kolmodin 2025b; Moore 2025) and peripheralization (Kühn 2015). The relational perspective allows us to move beyond a static view of place and peripheries and instead recognize place as an active social agent and peripheries as relational. In other words, it allows us to analyze how place-specific characteristics shape the ways professionals perceive and approach their work, and it emphasizes the importance of considering DM practices in relation to diverse spatial contexts (Fuller & Löw 2017). By employing this approach, we deepen our understanding of DM beyond the general focus on predefined strategies for engaging in DM within rural settings.

A key aspect of understanding place as relational is how individuals, in this case DM professionals, interpret and understand a given place emerges from its connections to broader spatial, social, and institutional entities, such as other places, networks, events, and individuals (Heley & Jones 2012; Massey 2005; Moore 2025). The

significance of these attributions is essential, since places serve as arenas for collaborative efforts (Gieryn 2000). For example, to conduct DM in accordance with the law, municipal actors must collaborate with both private and civil society actors within and outside their geographical area. From this perspective, the concept of relational place is particularly useful for understanding how respondents perceive their surroundings and how these places derive significance from their interactions with other places (Moore 2025; Stenbacka & Heldt Cassel 2020).

Rural areas, then, are not static entities but are actively shaped by social processes surrounding them. However, they are often understood as static entities and viewed as binary opposites (Kühn 2015), as policy norms and frameworks are typically shaped by urban perspectives and priorities (Rönnblom 2014). This is particularly evident in Sweden, where DM-related laws and regulations are commonly interpreted as being designed for urban contexts but are applied uniformly across all municipalities, regardless of local conditions. Ignoring the significance of place—or treating it as a neutral backdrop—risks oversimplifying real-world dynamics (Fuller & Löw 2017), as it fails to fully account for how individuals experience a place and how places shape our actions. Recognizing this, relational perspectives do not imply a dichotomy between territorial and relational views of place. Instead, both frameworks can coexist, acknowledging places as simultaneously local and global, fixed and dynamic (Yarker, Doran & Buffel 2023). For our study, this means that although we examine specific geographical areas in terms of municipalities, that is, fixed territorial places, we emphasize that the meanings professionals ascribe to these places, and the ways they influence DM work, are inherently relational.

The relational approach also needs to be applied to other key concepts analyzing place's influence on DM, such as distance and periphery. In this paper, we distinguish between geographical and relational distance, acknowledging that distances, like place, are a product of structural and relational factors, including how people experience and talk about distance (Heldt Cassel & Stenbacka 2020). While geographical distance refers to physical separation measured in spatial terms, either in a straight line or by travel routes, relational distance refers to the perceived separation that individuals experience. In this paper, we argue that it is not only the geographical distance that matters when DM professionals frame their work, but also how they understand distance, that is, its relational aspects.

A similar distinction needs to be made regarding the centre–periphery dynamic, often understood as an urban–rural continuum (Kühn 2015; Kolmodin 2025a) used to highlight hierarchical spatial relationships. Our included places are often framed as peripheral, a marginal space relative to something perceived as more developed, prosperous, or resource-rich (Stenbacka & Heldt Cassel 2020), for example, larger towns in the south of Sweden. However, much like absolute distance, these concepts fail to account for individual subjective understandings of place (Stenbacka & Heldt Cassel 2020), as the concept of periphery tends to emphasize static, predefined characteristics such as proximity to the centre, remoteness, and low population density (Kühn, 2015), aspects often used to describe our included municipalities. To address these limitations, we adopt the concept of peripheralization (Kühn 2015; Kolmodin 2025a; see also Stenbacka & Heldt Cassel 2020, who frame periphery as a process), which describes how peripheries are socially constructed through institutional, economic,

and political relations, rather than existing as naturally occurring spaces (Kühn 2015: 367). Put differently, they are relational. Applying peripheralization as an analytical framework allows us to highlight the interplay between multiple factors that shape DM professionals' understanding of their work, including political, economic, and social dimensions, and how these contribute to both the material conditions and perceptions of peripheralization (Kühn 2015; Pugh & Dubois 2021).

However, centralization and peripheralization should not be seen as a fixed dichotomy but rather as relational processes occurring along a continuum. For example, a place that is politically centralized may not necessarily hold a central position in economic terms (Kühn 2015). Nonetheless, these dimensions often overlap, reinforcing patterns of peripheralization or centralization. Crucially, the concept of peripheralization also incorporates a dynamic, temporal dimension, recognizing that peripheralization is not static but rather subject to ongoing transformation, allowing for processes of de-peripheralization or re-centralization (Kühn 2015). This perspective is particularly relevant for understanding DM professionals' perceptions of their work, where evolving policy frameworks, demographic shifts, and economic investments can either entrench or disrupt peripheralization processes.

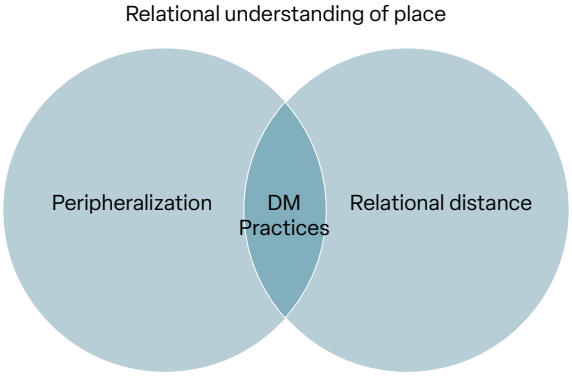

Fig. 1. Our theoretical understanding of the intersection of relational place, distance and peripheralization and their influence on DM practices.

In summary, adopting a relational perspective on place enables us to conceptualize place as an active agent in DM professionals' understanding of their practices, meaning that a relational understanding of place influences how we, throughout the article, interpret the narratives of our informants. The conceptual model presented (see Fig. 1) offers a framework for understanding this complexity. It illustrates how places gain meaning through connections with other places and actors, how perceived distance affects access and influence, and how marginalization is produced through broader institutional and political processes. Together, these concepts offer a framework for analyzing rural DM not as isolated or static, but as embedded within relational and processual spatial configurations.

Research Context

In a Swedish context, responsibility for DM-related questions is distributed across national, regional, and local levels. However, because of laws and regulations in the

DM area, DM is mainly decentralized, with municipalities playing a central role (Oscarsson et al. forthcoming). In peacetime, municipalities' DM practice should include preparations and operations for extraordinary events such as pandemics, forest fires, storms and snowstorms, flooding, etc., as well as establishing a crisis management committee, overseeing its activities, assigning responsibility for specific geographic areas, conducting training and exercises, and ensuring proper reporting. This work is partly funded by the government and partly through local tax allocations. As we are interested in how places, as relational constructions, are experienced at the local level when organising DM, we take municipalities as our point of departure. In line with the theory, we view these municipalities as territories where administrative tasks are carried out. As argued by, for example, Yarker, Doran and Buffel (2023), it is possible to discuss places as territorial—such as the four municipalities used as criteria for selection in this study—while still recognising the importance of relational aspects. This means acknowledging that relations and connections with other places, including political processes (Heley & Jones 2012; Pierce, Martin & Murphy 2011), are crucial for understanding informants' views of place, which we argue will influence how DM practitioners discuss their work.

The four included municipalities are located in what is often, carelessly and simplistically, referred to as Norrland. A more accurate description is that they belong to the inland municipalities of Västerbotten County, meaning they are located along the Norwegian border. The included municipalities are chosen for several reasons. First, as of 2022, their combined population was 17,000—spread across 25,500 square kilometers, an area similar to Belgium. However, with only 0.67 inhabitants per square kilometer, these municipalities rank among the most remote and sparsely populated regions in Europe (SCB 2022). Second, since 2020, they have faced a 20 per cent decline in population, creating demographic challenges with tax revenue, the working population, and, in the end, their ability to find and retain staff knowledgeable about DM work. Third, while many municipalities in Sweden, and elsewhere, are described and categorized as rural, the included municipalities are primarily forested rather than arable land. Additionally, people live across almost the entire municipality, a clear difference from other large rural municipalities in Sweden. The spatial distribution becomes evident in the map below (see Fig. 2), where the included municipalities are marked in red. In total, the included municipalities make an interesting and relevant section of cases to analyze how understandings of place influence DM professionals' understanding of DM practices.

Historically, municipalities in northern Sweden were, in the late eighteenth and early nineteenth centuries, seen as the "land of the future" for their natural resources, contributing to Sweden's industrialization (Sörlin 2022). Today, this perception has shifted towards "green energy projects" like battery factories and windmills (Sörlin 2022), often in so-called mega projects. While these initiatives are frequently framed as regional development, they tend to be concentrated in or near the larger urban centres of northern Sweden. As a result, the municipalities under study do not experience tangible benefits from these projects. Instead, they are confronted with what others have called "chronic crises" (Kvarnlöf 2022; Stienstra 2015) including long-term public sector cuts, lack of welfare services (e.g., maternity wards, hospitals, police), and the closure and centralization of rural services like supermarkets and post offices

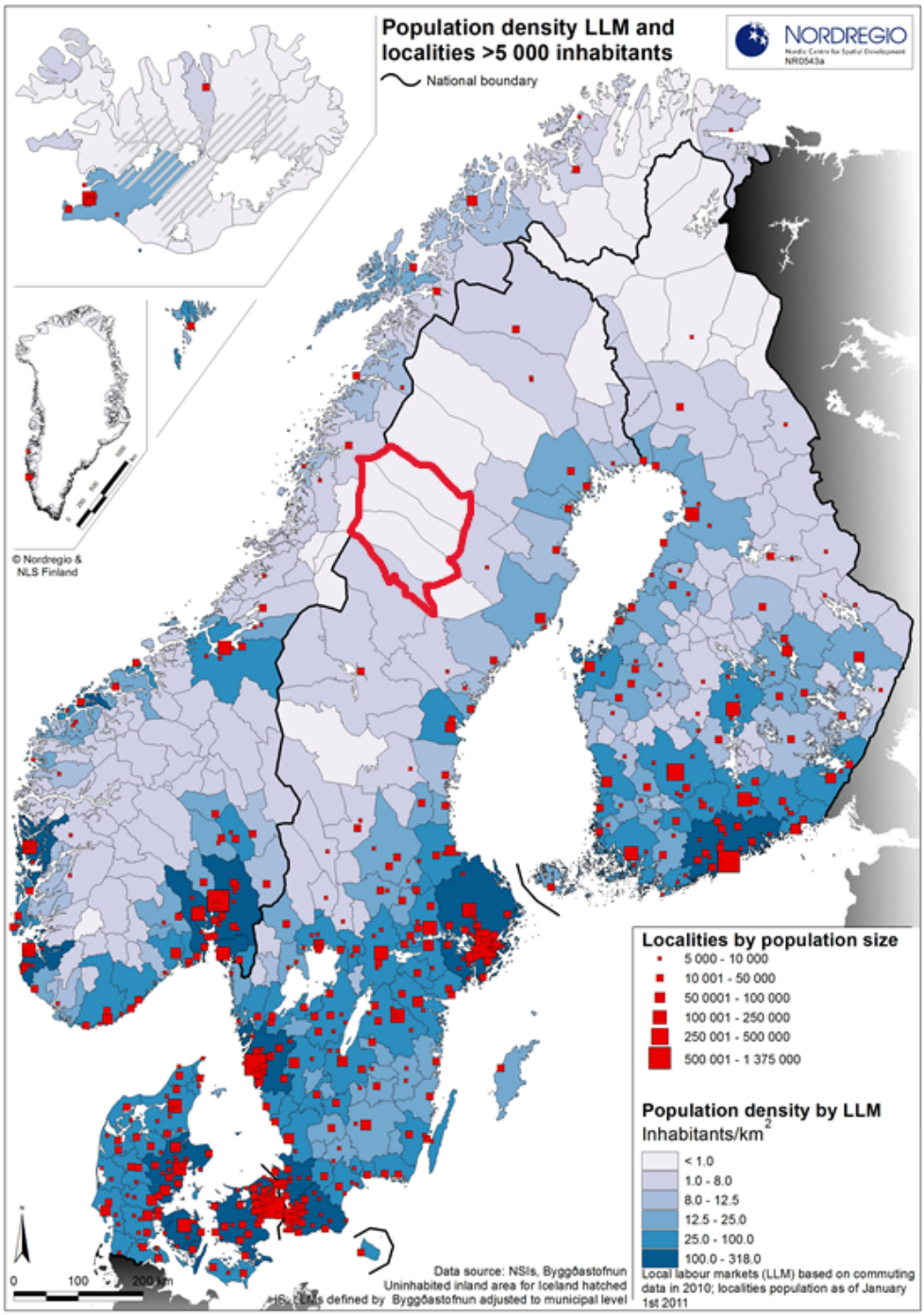

Fig. 2. Population density and location of the included municipalities (our own editing marked in red). Source: Johanna Roto, Nordregio at www.nordregio.org.

(Enlund 2020; Larsson 2021; de Fine Licht, Karlsson & Skoog 2024). At the same time, these areas attract increasing numbers of tourists, particularly from continental Europe, drawn by the region's relatively "untouched" nature and landscapes. This growing tourism sector further highlights the paradox of visibility and neglect: while

the region is marketed and consumed as an intact wilderness, its permanent residents face ongoing infrastructural decline.

In relation to the aim of this article, the developments in rural communities can be connected to the Swedish political agenda, which often employs the urban as the norm for organising society (Rönnblom 2014). This is also the case in political debates (Stenbacka & Heldt Cassel 2020) and news reports (Eriksson 2008), where rural areas, such as those included here, are ascribed structural problems, including depopulation, low levels of services, and poor municipal finances (see also Vallström 2014). Despite these challenges, rural communities display strong voluntary engagement and strong networks compensating for the loss of services and maintaining community life (Lundgren 2020; von Essen & Ydremark 2020).

Given these circumstances and the broad scope of responsibilities connected to Swedish DM law, the studied municipalities must adopt a structured approach to effectively handle crises that impact residents, businesses, and visitors. In the following section, we focus on previous research concerning DM in rural areas.

Materials and Methods

The paper builds on interviews with municipal representatives who, in various ways, are engaged in DM practice in their respective municipalities. In this section, we aim to describe the process of selecting and finding informants, as well as our analytical approaches.

Selection of Respondents

The paper builds on nine interviews conducted in 2022 with individuals who, in various ways, work with DM questions and tasks at the municipal level in the previously described area. In the four included municipalities, we have interviewed two or three DM professionals per municipality. However, many respondents work part-time with questions related to DM. For example, respondents divided their employment tasks between different roles. To reflect each interviewee's situated experience, we refer to them in the results section by the professional role with which they identified. These include: Environmental Health Officer, Emergency Preparedness Coordinator and Rescue Chief, Head of Environmental Department, Municipal Manager, Emergency Preparedness and Environmental Health Officer, and Emergency Preparedness Officer. While these titles may not always correspond to formal or exclusive DM positions, they highlight the hybrid, often overlapping character of civil protection work in rural settings. This also reflects the relatively small number of respondents included in the study, which stems from the challenges of recruitment within a very limited pool of potential interviewees. While nine respondents are insufficient to make any generalizations to other places, there are still interesting analytical generalizations (Kvale & Brinkmann 2014) to be drawn from the results of the interviews, offering insights that contribute to broader conceptual understandings.

We based our selection of respondents on two strategies: (i) identifying respondents through municipal web pages, and (ii) employing a snowball sampling method (Bryman 2016). The purpose of the latter was to ensure that we did not overlook relevant individuals who, while not formally assigned to work with DM-related issues, nonetheless occupy positions that provide valuable insights into the organization's DM practices.

Respondents were scheduled for interviews and given information about ethical considerations and informed consent. Due to the COVID-19 pandemic in 2022, the interviews were conducted via video call using Teams, recorded with a dictaphone, and later transcribed. The interviews averaged 60 minutes in length. We used a semi-structured interview guide to allow respondents to speak freely and enable follow-up questions. The interviews covered five main themes: organizational details, roles, knowledge and learning, changes over time, and relations. In approaching these themes, our interest was not in establishing an objective or definitive account of DM, but rather in understanding how the practitioners themselves experienced, interpreted, and made sense of their work. This emphasis reflects our focus on situated knowledge and the subjective perspectives through which DM practices are enacted in everyday professional contexts.

In addition to the nine municipal interviews, we conducted two supplementary interviews with representatives from the County Administrative Board in the region of the municipalities. These interviews were not included in the main analytical sample but served to deepen our understanding of the institutional context and the formal responsibilities that frame municipal DM work. The interviews offered insights into regional-level expectations, support structures, and coordination practices, which helped us better interpret the practitioners' situated accounts. While our primary focus remained on how municipal professionals experienced and understood their work, the supplementary interviews provided important contextual clarification of the conditions under which this work is carried out.

Analytical Approach

Given our focus and theoretical foundation, our analytical approach is best characterized as a thematic deductive analysis (Bryman 2016). By focusing on place as relational and examining how this understanding influences place, distance, and peripheralization impacts DM practice, we conducted the analysis in three steps. First, using NVivo, we coded all text that was related to respondents' descriptions of the place where they were situated. This includes both when respondents discuss their own place directly or in relation to other places. In the second step, we analyzed the selected material based on the understanding of distance and peripheralization. Lastly, we examined the entire material to understand how place influences DM practice.

We have not used the words *latent* and *manifest* in the results and analysis section; however, in our aim to create a greater understanding of the phenomenon from the respondents' perspectives (Vaismoradi, Turunen & Bondas 2013), the latent themes are essential for understanding the underlying meanings of the respondent's narratives concerning place. Here, informants do not always clearly discuss places, but it is somewhat latent in their narratives. Still, the manifested themes are also important, as they "describe the obvious," which is essential for describing the situation in various ways, such as distances. The great advantage of thematic analysis is that it allows for analyses of both manifest and latent themes and combine them (Boyatzis 1998), contributing to a more complete understanding of the phenomenon. This means that while our primary focus has been on what professionals explicitly articulate, we have also paid attention to what remains unsaid, as well as to the implicit meanings that

Table 1. Analytical themes

Main theme	Sub-theme	Example of codes
Relational distance	Internal spatial dynamics	Decentralized resource allocation Operational fragmentation
	Distance to others	Perceived remoteness Disconnection from central authorities Comparison with other municipalities
Experiences of peripheralization	Political	Policies designed for urban areas Mismatch between law and local context
	Financial	Perceived financial disadvantage Shrinking tax base
	Social	Workforce scarcity Resilient rural identity

emerge when one reads between the lines (Vaismoradi et al. 2016; Vaismoradi, Turunen & Bondas 2013). However, we do not intend to make generalizable assumptions but rather to understand and describe complexities (see, for example, Creswell 2013).

Results and Analysis

In this section, we illustrate how place actively shapes professionals' understanding and experience of DM practices in rural northern Sweden. Drawing on the concept of relational place, we examine how DM professionals make sense of and respond to the specific characteristics of their municipalities, not as static backdrops but as dynamic agents that influence organizational practices. Our analysis is organized around two interrelated themes: (i) expressions of relational distance and (ii) experiences of peripheralization (see Table 1). Together, these themes illustrate how DM professionals navigate, negotiate, and sometimes resist dominant norms embedded in centralized governance frameworks surrounding DM practice.

Expressions of Relational Distance

DM in the studied municipalities is affected by the large distances and extensive geographical areas they are legally responsible for under Swedish law (SFS 2006:544). However, DM is also shaped by how professionals experience and articulate relational distance, that is, how they relate their geographical place to other places. While vast territories and low population density create tangible logistical challenges, our informants describe distance as more than a question of kilometers; it is also about disconnection from institutions, infrastructures, and decision-making processes centred elsewhere.

One prominent example of how place and size need to be understood as both territorial and relational is when professionals discuss how their municipalities differ from other large, geographically expansive areas in Sweden. As one respondent put it:

> These really small municipalities [concerning population size] are an anomaly in themselves because Sweden is planned based on having a lot of people in a limited space, and I usually say that we are the exact opposite in every possible way. (Head of Environmental Department)

Importantly, our respondents not only distinguish between urban areas with high population density and their own rural settings, but also between different types of rural municipalities. They emphasize that not all rural areas are alike; some are marked by vast uninhabited land, while others, like their own, are populated throughout, creating different demands and governance challenges. While many rural municipalities are characterized by sparse settlement concentrated in isolated pockets, our case municipalities are populated throughout, requiring a decentralized resource strategy. One respondent explains:

> What sets the five largest municipalities in terms of area apart from us is that we have people everywhere. We have two valleys that connect to Norway, we have home care staff who drive 300 kilometers a day. In the event of a power outage across the whole municipality, the task here is much tougher … In Jokkmokk, you know, people live in a very limited area of the municipality, and the rest is untouched mountains. That is not the case here. Therefore, we need to be prepared … It's like the fire service: the fire truck cannot be too far away because then the house will have burned down before it arrives. We need to spread resources over the area so we can take action quickly. (Municipal Manager)

These quotes highlight the need for professionals to adjust logistical and infrastructural assumptions to meet the demands of the national preparedness system. Distance is not just a matter of travel time for them, it structures how DM must be organized on a daily basis, particularly in relation to access to critical infrastructure, response speed, and built-in redundancies.

Relational distance is also expressed when discussing *distance in relation to other objects,* or more precisely, accessible training opportunities for voluntary crisis actors. National frameworks, such as those required to establish Voluntary Resource Groups (*Frivillig resursgrupp*, FRG), are a collaboration between the municipality and the voluntary defence organisations with support from the Swedish Civil Contingencies Agency (*Myndigheten för samhällsskydd och beredskap*, MSB). They are structured around centralized models of training and certification that assume proximity to urban centers. While the training and certification are central for the formation and participation of FRGs, one respondent highlights how the structure of organizing is limiting for them:

> A big problem when it comes to applying for grants and similar things via the FRG and MSB is that you have to attend a lot of training. And these trainings are in Stockholm [the capital of Sweden]. […] In a municipality like ours, sending people to Stockholm is … even if financially possible, logistically it would never attract anyone to join on a voluntary basis. It's just not possible. (Emergency Preparedness and Environmental Health Officer)

According to the respondent, the issue here is not simply one of budgetary constraints, but rather an organizational logic that fails to consider northern rural realities. What also needs to be considered is that the included municipalities experience a lack of

infrastructure for communication by train or plane. For example, getting from Sorsele (the main town) to Stockholm would require 16 hours and two changes by bus; 10 hours of driving; or driving followed by a flight from one of the smaller airports in the region with few departures. Put differently, it is not the actual distance that is the main concern, but rather the relationship and combination of different aspects that influence the possibility of participation. Therefore, distance contributes to the marginalization of rural actors and municipalities, whose participation becomes structurally constrained despite formal inclusion. In that way, distance is also experienced emotionally and discursively.

Collectively, these examples illustrate that both territorial and relational distances shape how DM is organized and experienced by DM professionals in rural areas. Centralized approaches to training, regulation, and planning often lead to exclusionary effects that hinder broader participation, even when intended to be developed for all. Understanding these dynamics calls for a shift away from purely spatial metrics toward an appreciation of how distance is socially and institutionally constructed and influences DM professionals' understanding and practices of DM. A unifying theme across the narratives is professionals' awareness of normative expectations defining "proper" DM. Rather than simply conforming, they actively reinterpret and, at times, resist these frameworks, as will be further illustrated in the next section. In doing so, they develop alternative forms of legitimacy rooted in local knowledge and community embeddedness (cf. Cook 2015). These responses are not acts of resistance, but rather adaptive governance strategies attuned to the specific spatial, social, and institutional contexts of rural environments.

In the following section, we identify how the relational view of place enables an understanding of various spatial processes of peripheralization that influence DM professionals' views on their work.

Experiences of Peripheralization

In the empirical material, several types of peripheralizations are expressed by DM professionals. While these forms of peripheralization frequently intersect in practice, we analytically distinguish between political, financial, and social dimensions in this section. This separation serves to clarify their specific characteristics and dynamics.

While territorial and relational aspects of distance influence the everyday work of DM, our informants also describe a deeper, structural form of marginalization, a type of peripheralization that operates through laws, regulations, and institutional expectations. This peripheralization is not solely about territorial or relational remoteness. Rather, it is discursive and institutional, grounded in the urban as a normative standard for how DM should be organized and assessed. In this context, rural municipalities are positioned as outliers, not because they are viewed as less capable, but because their practices diverge from an urban-centric model embedded in national frameworks and understandings of what and how DM should be carried out.

While generally associated with a lack of political influence (Kühn 2015). In this section, we understand "political peripheralization" as those aspects associated with law and policy regulation that DM professionals do not experience as taking rural reality into account. Put differently, how respondents describe what others have called "urban as norm" (Rönnblom 2014). An intimate connection to an understanding of

places as relational is when respondents discuss how well laws and regulations are adopted for their territorial area of responsibility, and how that shifts over time. Several of the respondents, in somewhat different ways, describe national policies and regulations as designed by people who have taken little consideration of rural contexts:

> It is not easy to write a general law that works for both rural and urban areas, of course. But sometimes, it is so poorly thought out that you wonder what they were thinking. You instinctively imagine them sitting in the capital, writing a law without ever having set foot in a rural area. (Emergency Preparedness and Environmental Health Officer)

While acknowledging that general laws for all 290 municipalities in Sweden are challenging to write, the quotation above expresses feelings of political peripheralization, where exclusion is felt not only in terms of physical remoteness but also through a lack of understanding and contextual awareness of the realities and conditions in rural municipalities in the north. DM professionals often experience a relational distance from the policymaking processes, which in turn impacts their work, despite the existence of formal channels of coordination and the fact that legal frameworks are intended to be universal.

The process and how political peripheralization is being played out also becomes evident in how oversight and evaluations are conducted by supervisory authorities, such as the County Administrative Board in the region. Despite fulfilling legal obligations and demonstrating practical capacity, rural municipalities often experience that they receive criticism for lacking formal routines or documentation. At the same time, they highlight how the inspections carried out reflect a lack of contextual understanding. Two respondents independently discuss their experience:

> A typical situation is when people (inspectors) come to these small municipalities. [They say] 'Yes, you are very skilled in practice, but you have no routine for this, and you do not have a plan … How do you ensure quality?' They become very stressed … But we have a culture … Yes, if we need to have a plan, we make one, and there are written routines, but we do not place emphasis on that. (Head of Environmental Department)

> When people from the County Administrative Board come to conduct inspections, they are often from Umeå [the county capital of Västerbotten]. They miss the mark, lack knowledge, and sometimes do not fully understand the difficulties [of organizing DM here]. (Emergency Preparedness and Environmental Health Officer)

The quotes illustrate that political peripheralization emerges through the ways in which these laws are interpreted, negotiated, and enacted in practice. Rural professionals experience that they are often judged against standardized benchmarks that assume the presence of formalized structures, benchmarks rooted in urban assumptions of scale, specialization, and administrative capacity. These expectations clash

with local modes of organizing, which are often more flexible, embedded, and person dependent.

These assessments, as Kühn (2015) argues, exemplify the external and internal constructions of peripheralization. External as rural places are framed through normative ideals developed elsewhere rather than through their own embedded logics and practices. The dissonance between urban-oriented governance frameworks and rural realities produces friction, misunderstanding, and what many respondents describe as misrecognition. In this view, centralization is not just about institutional control, it is about whose realities count in the formulation of laws and regulations. The urban is not just the norm but is normatively used as a blueprint for what proper DM organization looks like. On the other hand, it is also internal, as DM professionals recreate themselves and their municipalities as rural actors and rural places, set apart from the urbanized norm.

This understanding is mirrored in other interviews, where the consequences of applying the same legal frameworks to radically different contexts are made visible. In the quotation below, the respondent discusses how regulations—here in having a back-up water supply in case of a societal crisis—are understood as designed with the urban city in mind rather than rural municipalities in Northern Sweden:

> You can't apply … And this is evident … in all the areas I work in, there is this urban perspective that is applied to all municipalities. It is so misguided in many ways because it just doesn't work in practice. […] A rather amusing example is drinking water. The same requirements are placed on us regarding drinking water as on Stockholm City. […] But the water going into our treatment plant is cleaner than the water coming out of theirs. It's almost ridiculous that we are being inspected on the same points when the issue is essentially a non-issue. (Emergency Preparedness and Environmental Health Officer)

Here, professionals experience a mismatch between regulation and context. Professionals further experience that this is not just inconvenient, it undermines the legitimacy of rural governance practices and burdens municipalities with requirements that are irrelevant to their actual risk landscape. Importantly, rural DM professionals are not merely passive recipients of this peripheral status, many actively reframe their ways of working as pragmatic and adaptive, not deficient. They see their informal methods and embedded networks as strengths in responding to crises and in DM in general.

Professionals also discuss a type of *financial peripheralization,* often understood as referring to areas where individuals face poorer economic conditions for coping with their everyday lives or regions with less qualified workforces (Kühn 2015). We utilize this concept to understand how they discuss a financial peripheralization of their municipalities in relation to DM practice.

This financial peripheralization can be understood in terms of the gap between the obligations placed on municipalities and the resources available to meet them (Kvarnlöf 2022; Kvarnlöf & Eriksson 2024). The interviewees describe a pronounced sense of imbalance, particularly in rural municipalities where limited and declining populations result in reduced tax revenues and, consequently, fewer resources for DM-related work.

> What has been important, at least for me, is to highlight the demands from the national authorities, but also that we do not receive … or have the opportunity, because we do not have the same resources as they do down in Umeå, I mean, they are four or five people working with DM. And here, I'm doing it on barely a half-time position. So, the conditions are a bit different. (Preparedness Coordinator and Rescue Chief)

While resources are typically viewed as a challenge in all municipalities in Sweden, in these municipalities, it boils down to practical questions. One DM professional describes how it sometimes is a matter of everyday strategies to maintain basic service to the citizens:

> It is a constant challenge and lack of resources, and we do not have the money to maintain the roads. It's more like, "can we afford to keep the streetlights on, and have a functioning snowplow to clear the snow?" Of course, it's a challenge, but we just have to deal with it. (Emergency Preparedness Officer)

This quote clarifies how the lack of tax revenue, which should partly finance preventive DM work, affects the possibilities of DM professionals. It simply becomes difficult to justify greater resource allocation to DM work if it is set against other services. The financial peripheralization discussed above also affects what we refer to as *social peripheralization*. We utilize this concept to illustrate how specific locations and political and financial peripheralization can create challenges. One of the most prominent challenges through the interviews is related to how place-specific conditions create problems for hiring personnel to work with DM-related questions. This, on the one hand, is related to a general problem where respondents describe how they have been short-staffed for over a year. On the other hand, the problems are also related to these municipalities being viewed as less desirable places and having fewer opportunities than other places. In previous research, this is often discussed in terms of rural areas being viewed as less desirable places for young people (Hjort 2023); however, it is also linked to the municipality's financial capacity to attract potential employees to move there.

> As soon as it becomes about university and university credits, we do not have the capacity. In terms of salary, there are not that many who, I mean, those who have moved … those who continue their studies and are from here, they move on somewhere else in the world. They do not come back. Because there are so few jobs, so few positions. (Emergency Preparedness Officer)

While some who have moved away to study do come back when they decide to settle down, what is problematized is the municipalities' inability to pay a decent salary. Another problem that arises is when two people, often in a couple relationship, move back to these areas. As there are generally fewer positions available, it also becomes more difficult for both partners to find suitable jobs to apply for.

While social peripheralization creates problems, it is also a reality that rural DM professionals are used to because "rural areas are skilled at making the most of limited resources" (Emergency Preparedness Officer) and acknowledge that "We are different

… but that's part of the charm. You have to enjoy this kind of challenge" (Head of Environmental Department).

In summary, the citations illustrate that peripheralization is not merely imposed; it is also negotiated, resisted, and reinterpreted through everyday practices by DM professionals, who construct rural governance not as a failed version of the urban but as a distinct model with its own internal logic and legitimacy. Peripheralization in this context operates through the imposition of urban-centric norms that fail to account for the lived realities of rural DM and the interplay between political, financial and social peripheralization. DM professionals experience the mismatch between law and context, in place-based adaptation, and in the need to translate local knowledge into forms that are legible to external authorities on a constant basis. Yet, it also generates resistance and creativity, demonstrating that governance at the margins is not a sign of weakness but a site of innovation and local rationality.

Discussion. The Implications of Treating Places as Static in DM Practice

In this section, we explore how a relational understanding of place influences the practice of DM professionals in rural municipalities in Northern Sweden. Our findings suggest that it is not merely the geographical size of these municipalities that shapes DM work, but rather the relational distances—how individuals and communities are experienced and constructed in relation to other places (Massey 2005; Stenbacka & Heldt Cassel 2020). In other words, the subjective experiences of place held by DM professionals significantly influence how they interpret and carry out their responsibilities (Stenbacka & Heldt Cassel 2020).

When place is treated as a static, isolated entity rather than a relational and situated construct, several practical challenges emerge. As discussed in our findings and consistent with Lundgren (2020), ignoring the spatial and relational connections between places risks oversimplifying complex realities. In line with Heley and Jones (2012) and Massey (2005), our analysis illustrates how place derives meaning through its connections to other locations—an insight that is crucial for understanding the organization of DM in rural contexts.

Our study highlights that these areas are not only defined as "rural" but are also characterized by sparse populations and large internal distances. Residents often live far from centralized towns, which complicates the organization of locally responsive emergency management structures. This becomes particularly evident when informants reflect on the feasibility of forming voluntary emergency groups. The challenge is not only geographic but relational: even when volunteers are available, they may be unwilling or unable to travel the required time to participate in training or respond to urgent needs.

Another significant theme that emerged from our data concerns the tension between legal mandates and practical realities. DM professionals report a disjuncture between what municipalities are legally required to do and what is feasible in rural practice, a finding aligned with Becker and Bynander (2017), who argue that there is a gap between policy and practice. They highlight how the system often distributes obligations across a wide range of actors, while its operational focus remains largely on public authorities, overlooking contextual variation and practical limitations.

This resonates strongly with our respondents' descriptions of how legal expectations often fail to account for rural realities, thereby constraining the implementation of DM on the ground. Although previous research has addressed the policy-practice gap in emergency contexts (Adam-Hernández & Harteisen 2020; Kapucu, Hawkins & Rivera 2013; Kvarnlöf 2022), few studies have foregrounded *place itself* as an analytic category. By applying a relational perspective—one that views place as dynamic, interconnected, and shaped by social and spatial relations—we show how this gap is deeply embedded in the structural conditions of localities.

These relational disparities emphasize the inadequacy of simply referring to municipalities as "large" or "rural." For instance, access to public services varies significantly even among similarly classified municipalities (Enlund 2020; Larsson 2021; de Fine Licht, Karlsson & Skoog 2024), resulting in divergent DM capacities. As Vallström (2014) aptly put it, "the map does not always correspond to reality."

Moreover, our informants experience and express that laws, regulations, and policies are often constructed with urban contexts in mind, a critique that echoes previous research highlighting how such frameworks often prove impractical when applied to rural settings, due to the significant structural and spatial differences between urban and rural areas (Cutter, Ash & Emrich 2016; Haase et al. 2021). However, our study goes further by illustrating how such urban-centric norms contribute to a sense of *peripheralization* among DM professionals. This feeling is not merely symbolic but is experienced as a material reality through inadequate policy designs, limited financial resources, and persistent difficulties in recruitment and retention. We interpret these as forms of political, financial, and social peripheralization, as conceptualized by Kühn (2015). One concrete example involves regulations around water supply. DM professionals reported that legal expectations, such as having formalized contracts for emergency water access, are impractical in rural settings. As De Majo and Olsson (2019) and McGuire and Silvia (2010) argue, policies must be rooted in practical knowledge and institutional arrangements attuned to the lived conditions of specific contexts.

In sum, place influences not only what DM professionals do, but also how they interpret, justify, and assess their actions. Our findings demonstrate that existing laws and regulations often fail to accommodate the infrastructural and social realities of rural municipalities. We argue that integrating a relational understanding of place into both policy and practice is essential for creating more context-sensitive, equitable, and effective DM systems.

While the empirical case is limited to four municipalities in northern Sweden and only nine respondents, we argue that there are still interesting analytical generalizations (Kvale & Brinkman 2014) to be drawn. The article illustrates how place-based dynamics can shape professionals' sense of responsibility and legitimacy, an important aspect for understanding how rural municipalities carry out their DM work despite challenging conditions such as limited resources (cf. Oscarsson et al. forthcoming). This is a dimension that deserves particular attention in studies of DM, especially in rural contexts. Lastly, the article's focus on relational approaches in DM, contributing to revealing how professionals' experiences are shaped through inter-place relations and ongoing processes of peripheralization. Such insights may inform comparative analyses across rural contexts and enhance theoretical understandings of place-sensitive governance.

Conclusion

This article examines how the concept of place shapes the work of DM professionals. While previous research has acknowledged that large distances within rural regions can complicate DM efforts, few studies have explicitly analyzed the role of *place itself,* as a dynamic and relational construct, in shaping professional practices and experiences. Based on the research questions, our findings show that various understandings of distance need to be taken into account, and that place should be understood both territorially and relationally. While the territorial distance creates challenges, the relational distance is what most often is mentioned by the informants as challenging; that is, how distance is experienced. Therefore, the most challenging "distances" are not always physical but are often embedded in relational and structural configurations. Further, we identify how, for instance, legal frameworks and institutional procedures, designed with urban norms in mind, can amplify feelings of peripheralization among rural DM professionals. These experiences are shaped by political, financial, and social inequalities, as reflected in respondents' narratives about policy application, regulatory oversight, and resource allocation. In this process, the rural areas are created and re-created through both external and internal construction of these places, creating feelings of peripheralization. Taken together, we argue that this article contributes a novel perspective to existing literature on DM by centering the analysis on how *place,* alongside specific actions or events, conditions professional experience and practice. Recognizing place as a relational and socially constructed phenomenon opens up new pathways for understanding spatial justice, policy misalignment, and institutional responsiveness in rural contexts.

By integrating this perspective into DM policy and institutional design, stakeholders can better account for the diverse challenges facing rural municipalities. Such an approach has the potential to foster more equitable, locally adapted, and practically grounded forms of disaster preparedness and response—both in Sweden and beyond.

The lack of studies focusing on relational aspects of DM calls for more research to deepen and broaden our insights. First, future studies could explore how relational place-making operates in other types of municipalities, in other rural and in urban contexts. Comparative research between rural and urban municipalities could also clarify whether these issues stem from broader structural features of governance or are specific to particular institutional or geographic contexts. More attention should be paid to how relational perspectives can be operationalized within policy design, potentially developing tools or frameworks that help institutional actors better account for spatial variability and lived experience. Such work could serve as a bridge between structural reform and grounded, context-sensitive practice in disaster preparedness and response.

REFERENCES

Adam-Hernández, A. & Harteisen, U. (2020). "A proposed framework for rural resilience. How can peripheral village communities in Europe shape change?," *AGER. Revista de Estudios sobre Despoblación y Desarrollo Rural*, 28, pp. 7–42.

Becker, P. & Bynander, F. (2017). "The system for crisis management in Sweden. Collaborative, conformist, contradictory," in *Handbook of Disaster Risk Reduction & Management*, eds. C.N. Madu & C.-H. Kuei, Singapore: World Scientific Publishing, pp. 69–95.

Bosoni, M., Tempels, B. & Hartmann, T. (2021). "Understanding integration within the Dutch multi-layer safety approach to flood risk management," *International Journal of River Basin Management*, 21:1, pp. 81–87; doi.org/10.1080/15715124.2021.1915321.

Boyatzis, R.E. (1998). *Transforming Qualitative Information. Thematic Analysis and Code Development*, London: Sage.

Bryman, A. (2016). *Social Research Methods*, Oxford: Oxford University Press.

Carson, D.A., Carson, D.B. & Argent, N. (2022). "Cities, hinterlands and disconnected urban-rural development. Perspectives from sparsely populated areas," *Journal of Rural Studies*, 93, pp. 104–111; doi.org/10.1016/j.jrurstud.2022.05.012.

Cook, B.R. (2015). "Disaster management culture in Bangladesh. The enrolment of local knowledge by decision makers," in *Cultures and Disasters. Understanding Cultural Framings in Disaster Risk Reduction*, eds. F. Krüger, G. Bankoff, T. Cannon, B. Orlowski & E.L.F. Schipper, London: Routledge, pp. 193–207.

Cox, R.S. & Hamlen, M. (2015). "Community disaster resilience and the Rural Resilience Index," *American Behavioral Scientist*, 59:2, pp. 220–237; doi.org/10.1177/0002764214550297.

Cretney, R.M. & Bond, S. (2017). "Shifting relationships to place. A relational place-based perspective on SES resilience," *Urban Geography*, 38:1, pp. 8–24; doi.org/10.1080/02723638.2016.1139865.

Creswell, J.W. (2013). *Qualitative Inquiry and Research Design. Choosing Among Five Approaches*, Thousand Oak: SAGE Publications.

Cutter, S.L., Ash, K.D. & Emrich, C.T. (2016). "Urban–rural differences in disaster resilience," *Annals of the American Association of Geographers*, 106:6, pp. 1236–1252; doi.org/10.1080/24694452.2016.1194740.

De Majo, V. & Olsson, J. (2019). "Institutional foundations of disaster risk reduction policy. Exploring and elaborating on two different cases. Argentina and Sweden," *Disaster Prevention and Management. An International Journal*, 28:2, pp. 245–257.

Dynes, R.R. (1994). "Community emergency planning. False assumption and inappropriate analogies," *International Journal of Mass Emergencies and Disasters*, 12:2, pp. 141–158.

Enlund, D. (2020). *Contentious Countrysides. Social Movements Reworking and Resisting Public Healthcare Restructuring in Rural Sweden*, Umeå: Umeå University.

Eriksson, M. (2008). "(Re)producing a 'peripheral' region. Northern Sweden in the news," *Geografiska Annaler. Series B, Human Geography*, 90:4, pp. 369–388; doi.org/10.1111/j.1468-0467.2008.00299.x.

von Essen, J. & Ydremark, T. (2020). *Det lokala civilsamhällets roll på landsbygden* ['The role of local civil society in rural areas'], Allmänna arvsfonden.

de Fine Licht, J., Karlsson, D. & Skoog, L. (2024). *Location of Public Services. Legitimacy, Challenges, and Solutions in Sweden*, Cham: Palgrave Macmillan.

Fuller, M.G. & Löw, M. (2017). "Introduction. An invitation to spatial sociology," *Current Sociology*, 65:4, pp. 469–491.

Gieryn, T.F. (2000). "A space for place in sociology," *Annual Review of Sociology*, 26:1, pp. 463–496.

Große, C. (2024). "Envisioning sustainable rural development. A narrative on accessibility and infrastructure from a Swedish region," *Journal of Rural Studies*, 109, pp. 1–13; doi.org/10.1016/j.jrurstud.2024.103319.

Guma, T., Woods, M., Yarker, S. & Anderson, J. (2019). "'It's that kind of place here.' Solidarity, place-making and civil society response to the 2015 refugee crisis in Wales, UK," *Social Inclusion*, 7:2, pp. 96–105.

Haase, T.W., Caldas, M.M., Machado, R. & Wunderlich, R. (2021). "The six capacities of community resilience. Evidence from three small Texas communities impacted by Hurricane Harvey," *Natural Hazards*, 109:1, pp. 1097–1118.

Heldt Cassel, S. & Stenbacka, S. (2020). *Periferi som process* ['Periphery as process'], Stockholm: Svenska sällskapet för antropologi och geografi.

Heley, J. & Jones, L. (2012). "Relational rurals. Some thoughts on relating things and theory in rural studies," *Journal of Rural Studies*, 28:3, pp. 208–217; doi.org/10.1016/j.jrurstud.2012.01.011.

Hirono, M. & Nurdin, M.R. (2024). "Local knowledge as the basis of disaster management and humanitarian assistance," *Disasters*, 48, pp. 1–12; doi.org/10.1111/disa.12634.

Hjort, E. (2023). "Marginalisation through the eyes of the othered. Young adults choosing to live in rural Northern Sweden." *Journal of Rural Studies*, 97, pp. 601–609; doi.org/10.1016/j.jrurstud.2023.01.011

Howard, A., Agllias, K., Bevis, M. & Blakemore, T. (2017). "'They'll tell us when to evacuate.' The experiences and expectations of disaster-related communication in vulnerable groups," *International Journal of Disaster Risk Reduction*, 22, pp. 139–146; doi.org/10.1016/j.ijdrr.2017.03.002.

Huskey, L. (2005). "Challenges to economic development. Dimensions of 'remoteness' in the North," *Polar Geography*, 29:2, pp. 119–125.

Johansson, R., Danielsson, E., Kvarnlöf, L., Eriksson, K. & Karlsson, R. (2018). "At the external boundary of a disaster response operation. The dynamics of volunteer inclusion," *Journal of Contingencies and Crisis Management*, 26, pp. 519–529; doi.org/10.1111/1468-5973.12228.

Kapucu, N., Hawkins, C.V. & Rivera, F.I. (2013). "Disaster preparedness and resilience for rural communities," *Risk, Hazards & Crisis in Public Policy*, 4:4, pp. 215–233.

Kapucu, N. & Hu, Q. (2016). "Understanding multiplexity of collaborative emergency management networks," *The American Review of Public Administration*, 46:4, pp. 399–417; doi.org/10.1177/0275074014555645.

Kelman, I., Mercer, J. & Gaillard, J. (2012). "Indigenous knowledge and disaster risk reduction," *Geography*, 97:1, pp. 12–21; doi.org/10.1080/00167487.2012.12094332.

Kendra, J.M. & Wachtendorf, T. (2016). *American Dunkirk. The Waterborne Evacuation of Manhattan on 9/11*, Philadelphia: Temple University Press.

Kolmodin, S. (2025a). "What's place got to do with it? Collaboration among civil society actors in northern rural Sweden," *Journal of Rural Studies*, 119, pp. 1–10; doi.org/10.1016/j.jrurstud.2025.103797.

Kolmodin, S. (2025b). *It's All About Relations. A Spatio-Temporal Perspective on Local Civil Society Collaboration*, diss., Sundsvall: Mid Sweden University.

Kühn, M. (2015). "Peripheralization. Theoretical concepts explaining socio-spatial inequalities," *European Planning Studies*, 23:2, pp. 367–378.

Kusumasari, B., Alam, Q. & Siddiqui, K. (2010). "Resource capability for local government in managing disaster," *Disaster Prevention and Management. An International Journal*, 19:4, pp. 438–451.

Kvale, S. & Brinkmann S. (2014). *Den kvalitativa forskningsintervjun* ['The qualitative research interview'], Lund: Studentlitteratur.

Kvarnlöf, L. (2022). "Landsbygder i brand. Kroniska kriser och krishantering i periferin" ['Countrysides on fire. Chronic crises and crisis management in the periphery'], *Kulturella Perspektiv. Svensk etnologisk tidskrift*, 31, pp. 1–8; doi.org/10.54807/kp.v31.4291.

Kvarnlöf, L. & Eriksson, K. (2024). "Filling the void. Rural disaster volunteerism during the Swedish wildfires of 2018," *International Journal of Disaster Risk Reduction*, 105, pp. 1–11; doi.org/10.1016/j.ijdrr.2024.104393.

Kvarnlöf, L. & Wall, E. (2020). "Stories of the storm. The interconnection between risk management strategies and everyday experiences of rurality," *Journal of Risk Research*, 24:8, pp. 1016–1029; doi.org/10.1080/13669877.2020.1789694.

Larsson, E. (2021). *Risky Distances. Peripheralisation and Normalisation in the Case of a Maternity Ward Closure in Sweden*, diss., Sundsvall: Mid Sweden University.

Lundgren, A.S. (2020). "Introduktion," in *Makt, moral och motstånd. Engagemang för norrländska landsbygder* ['Power, morality and resistance. Engagement for northern rural areas'], ed. A.S. Lundgren, Umeå: Umeå University.

Martin, D.G. (2004). "'Place-framing' as place-making. Constituting a neighborhood for organizing and activism," *Annals of the Association of American Geographers*, 93:3, pp. 730–750.

Massey, D. (2005). *For Space*, London: Sage.

McElduff, L. & Ritchie, H. (2018). "Fostering coastal community resilience. Mobilising people-place relationships," *Area*, 50:2, pp. 186–194.

McGuire, M. & Silvia, C. (2010). "Leading public sector networks. An empirical examination of integrative leadership behaviors," *The Leadership Quarterly*, 21:2, pp. 264–277; doi.org/10.1016/j.leaqua.2010.01.006.

Moore, A. (2025). "The eventfulness of place," *Geographical Review*, 00:00, pp. 1–16; doi.org/10.1080/00167428.2025.2467747.

Nilsson, B. (2021). "Rural resilience and voluntary work in the North of Sweden. An ambiguous relationship," *Journal of Northern Studies*, 15:1, pp. 37–54.

Orru, K. et al. (2022). "Approaches to 'vulnerability' in eight European disaster management systems," *Disasters*, 46:3, pp. 742–767.

Oscarsson, O., Kolmodin, S., Sparf, J. & Ioannides, D. (forthcoming). "Local resilience in rural northern Sweden. Challenges and opportunities in disaster management" [accepted in *Natural hazards*].

Pierce, J., Martin, D.G. & Murphy, J.T. (2011). "Relational place-making. The networked politics of place," *Transactions of the Institute of British Geographers*, 36:1, pp. 54–70.

Pugh, R. & Dubois, A. (2021). "Peripheries within economic geography. Four 'problems' and the road ahead of us," *Journal of Rural Studies*, 87, pp. 267–275; doi.org/10.1016/j.jrurstud.2021.09.007.

Reuter, M. (2012). "Överenskommelsen som spegel och arena. Betraktelser över ett avtal i tiden" ['The agreement as mirror and arena. Reflections on a timely deal'], in *Civilsamhället i samhällskontraktet. En antologi om vad som står på spel*, Stockholm: European Civil Society Press, pp. 217–244.

Rönnblom, M. (2014). *Ett urbant tolkningsföreträde? En studie av hur landsbygd skapas i nationell policy* ['An urban right of interpretation? A study of how rural areas are created in national policy'], Umeå: Umeå University.

Sadri, A.M. et al. (2018). "The role of social capital, personal networks, and emergency responders in post-disaster recovery and resilience. A study of rural communities in Indiana," *Natural Hazards*, 90, pp. 1377–1406.

SCB = Statistiska centralbyrån ['Statistics Sweden'] (2022). Kommuner i siffror ['Municipalities in figures']; https://www.scb.se/hitta-statistik/sverige-i-siffror/kommuner-i-siffror/; accessed on 13 Aug. 2024.

SFS = Svensk författningssamling ['Swedish law collection'] (2006:544). Om kommuners och regioners åtgärder inför och vid extraordinär händelse i fredstid och höjdberedskap ['On the measures taken by municipalities and regions before and during extraordinary events in peacetime and heightened preparedness'], Sveriges riksdag.

Sörlin, S. (2022). Sommar i P1 ['Summer in P1' (Swedish radio program)], Sveriges Radio; https://sverigesradio.se/avsnitt/sverker-sorlin-sommarprat-2022; accessed on 28 Nov. 2025.

Sparf, J. (2014). *Tillit i samhällsskyddets organisation. Om det sociala gränssnittet mellan kommunen och funktionshindrade i risk- och krishantering* ['Trust in civil protection and preparedness. On the social interface in risk and crisis management between disabled people and the municipal organization'], diss., Östersund: Mid Sweden University.

Stenbacka, S. & Heldt Cassel, S. (2020). "Introduktion. Periferier och periferialisering" ['Introduction. Peripheries and peripheralization'], in *Periferi som process*, eds. S. Heldt Cassel & S. Stenbacka, Stockholm: Svenska sällskapet för antropologi och geografi, pp. 7–24.

Stienstra, D. (2015). "Northern crises," *International Feminist Journal of Politics*, 17:4, pp. 630–651; doi.org/10.1080/14616742.2015.1060695.

Vaismoradi, M., Jones, J., Turunen, H. & Snelgrove, S. (2016). "Theme development in qualitative content analysis and thematic analysis," *Journal of Nursing Education and Practice,* 5:4, pp. 100–110; doi.org/10.5430/jnep.v6n5p100.

Vaismoradi, M., Turunen, H. & Bondas, T. (2013). "Content analysis and thematic analysis. Implications for conducting a qualitative descriptive study," *Nursing and Health Sciences*, 15:3, pp. 398–405; doi.org/10.1111/nhs.12048.

Vallström, M. (2014). *När verkligheten inte stämmer med kartan. Lokala förutsättningar för hållbar utveckling* ['When reality does not match the map. Local conditions for sustainable development'], Lund: Nordic Academic Press.

Yarker, S., Doran, P. & Buffel, T. (2023). "Theorizing 'place' in aging in place. The need for territorial and relational perspectives," *The Gerontologist*, 64:2, pp. 1–6; doi.org/10.1093/geront/gnad002.

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ANDREJ KOTLIARTCHOUK & KOERT JANSSEN

Swedes under Stalin

The Stalinist Terror and Mapping of the Swedish Diaspora in the Interwar Soviet Union

ABSTRACT The article examines the Swedish diaspora in the interwar Soviet Union, focusing on dimensions that earlier research has treated only tangentially: the fate of Soviet-Swedes during the state-run terror against representatives of the so-called Western minorities. Combining quantitative analysis with a micro-historical approach, we refine knowledge not only of the composition of the Swedish diaspora but also of the individual trajectories of Soviet-Swedes during the period of mass repression. We argue that a systematic mapping of the Swedish diaspora is essential for understanding the nature and direction of Soviet terror against Nordic minorities: Who became victims and why, and who managed to survive and/or leave the country? Our principal finding is that the so-called Kiruna-Swedes were not a majority of Swedish residents in the Soviet Union. At the same time, this group was over-represented among Swedish victims of the Great Terror.

KEYWORDS Swedes in the interwar Soviet Union, Kiruna-Swedes, Great Terror, diaspora mapping, quantitative analysis, micro-historical approach

Introduction[1]

Building on previous scholarship that underscored the importance of mapping Western diasporas in the interwar Soviet Union for understanding the scope, vectors and implementation of the Great Terror, specifically the NKVD's "national operations" against ethnic minorities (Kotliartchouk 2024), this article returns to a neglected case: Swedes.

The 1926 All-Union census recorded 2,495 Swedes on the basis of self-identification. This figure included non-Swedish immigrants (e.g. Finland-Swedes) as well as Swedish colonists in Ukraine. Conversely, the census likely excluded many bilingual

[1] The authors are grateful to associate professor Olle Sundström and to two anonymous reviewers for their valuable comments, as well as to professor emeritus Torbjörn Nilsson (1954–2025), whose advice greatly contributed to improving the manuscript.

immigrants from northern Sweden who spoke both Swedish and Finnish and settled in the Finno-Ugric regions of Karelia, Kola and Ingria. As we discuss below, some of these Swedish citizens were classified by Soviet census takers, and later by the NKVD, as "Finns." Consequently, only records from the National Archives of Sweden allow us to isolate citizens of Sweden and identify them across categories such as "Swedes," "Finns" and other Scandinavians in Soviet statistics and security police files.

Methodologically, the article extends quantitative research on victims and survivors of the Great Terror (Ilic 2000; Holquist 2001; Kotljarchuk 2012; Kotljarchuk 2014b) by pairing it with a micro-historical approach. This combination, we contend, enables greater precision in reconstructing both the composition of the Swedish diaspora and the individual fates of Soviet-Swedes. In particular, we examine who became victims and why, and who survived or managed to leave the country. One of the principal aims is to map the Swedish diaspora in the interwar Soviet Union through analysis of the collected data, thereby contributing to a deeper understanding of the direction, composition and scale of the Great Terror as it affected Swedish immigrants. The personal trajectories of Swedish victims and survivors also allow us to assess the effectiveness and limits of the Swedish Foreign Office's rescue operation conducted in 1937–1938.

Historical Background

From the eighteenth century onward, the European parts of the Russian Empire became home to numerous non-Russian minorities with origins in Western, Central and Northern Europe. Two processes drove this development: imperial expansion by the Russian army and an active migration policy which, until the First World War, encouraged "foreign colonists" (Ru. *иностранные колонисты*) to settle in the empire, particularly in Ukraine, the Caucasus, the Kola Peninsula and the Volga region. According to the first Soviet census of 1926, there were 2,599,973 Jews, 1,238,549 Germans, 782,334 Poles, 398,998 Finns (including Karelians), 213,765 Greeks, 154,666 Estonians, 141,703 Latvians, 111,296 Bulgarians, 41,463 Lithuanians, 27,123 Czechs and Slovaks, 4,651 Romanians, 2,461 French, 2,328 Italians, and, as noted, 2,495 Swedes in the USSR.[2] In Soviet nomenclature, diaspora communities with European roots were designated as "Western minorities" (Ru. *западные меньшинства*). The Soviet Union was never entirely closed to foreigners, particularly members of the communist and labour movements labelled "political émigrés" (Ru. *политэмигранты*). The same census counted 390,385 foreign citizens residing in the country.

The 1926 census registered different categories of Swedes: persons born in the Russian Empire (notably in Saint Petersburg, Finland, Ukraine and Estonia) and Swedish emigrants. Most Swedes lived dispersed as individuals or family clusters, yet in certain regions small Swedish communities emerged. One of the largest groups of Swedish immigrants, known as the Kiruna-Swedes (Swe. *Kirunasvenskarna*), moved primarily to Eastern Karelia. In Swedish historiography, *Kiruna-Swedes* functions as a general term for working-class migrants from Norrland in northern Sweden (though not exclusively from that region) who immigrated to the Soviet Union between 1922

[2] Calculated by the authors on the basis of the 1926 All-Union Census; http://demoscope.ru, accessed on 23 January 2026.

and 1936 (Gustafson 2006). Multiple motives underpinned this movement. Unemployment and poverty were acute in Norrland, coinciding with rapid industrialisation in the north-western parts of the Soviet Union (Eneberg 2004; Kangaspuro 2004; Golubev & Takala 2014). For many Kiruna-Swedes, the first socialist state appeared as a "promised land." Young people migrated to pursue free higher education at the Communist University of the National Minorities of the West or to engage in professional sports training. Many preferred to remain in Soviet Karelia, where Finnish was widely used. Monolingual Swedish leftists established a Swedish-language party cell and educational circles in Petrozavodsk (Gustafsson 2006: 47–50; Kotljarchuk & Nilsson 2021: 190–192). The fact that the leader of the Karelian autonomous republic, Edvard Gylling, was a Swede from North Savo in Finland, fluent in both Swedish and Finnish, mattered to Kiruna-Swedes. Trained as a historian, Gylling defended a doctoral dissertation in agrarian history of Scandinavia at the University of Helsinki in 1909 before entering politics. A prominent Social Democratic politician and member of the Finnish parliament, he went into exile after the defeat of the Red Guards in the Finnish Civil War, first settling in Stockholm and later moving to Soviet Russia to head a Nordic socialist republic in Karelia.

A second significant Swedish community existed in Ukraine. The villagers of Gammalsvenskby—known in Swedish as *svenskbyborna* and in Ukrainian as *старошведы* ['Old-Swedes']—had settled in the Kherson steppe in 1782, maintaining their identity, language and Lutheran confession, as well as regular ties to Sweden. In 1929, following an agreement between the Swedish and Soviet governments, the entire village (888 persons) emigrated to Sweden (Kotljarchuk 2014a). All received Swedish citizenship. However, around 250 individuals returned to the Soviet Union in the early 1930s, joined by a group of Swedish communists.[3] In the 1930s, an experiment to create the world's first Swedish kolkhoz under the auspices of the Swedish Communist Party (SKP) was undertaken in Gammalsvenskby.[4] The main promoter of the Gammalsvenskby experiment was Allan Wallenius, director of the Comintern Library and head of the Scandinavian Section at the Communist University of the National Minorities of the West (Kotljarchuk 2014c). Active in Swedish and American left-wing circles, Wallenius joined the Swedish Communist Party and later worked in the USA as editor-in-chief of *Ny Tid* ['New time'], a Swedish-language newspaper of the American Communist Party (Mustelin 1984; Gardberg & Kaihovirta 2022). Detained by Swedish police in 1921 and expelled after publishing under a pseudonym a book on Gustaf Mannerheim (Grimlund 1919), Wallenius, born to a Swedish family in Dragsfjärd in the Grand Duchy of Finland (then part of the Russian Empire), was not a Swedish citizen despite his deep ties to Sweden.

[3] The archival records reveal that the following communists from Sweden resided in Gammalsvenskby in the 1930s: Edvin Blom, Karl Andersson, Hugo Albert Lauenstein, Karl Ture Gräås, Kasper Gustafsson, Hildur Gustafsson, Karl Sigfrid Holmström, Gunnar Blomberg, Erik Karlsson, Paul Söderman, and Erik Petersson.

[4] After the 1929 split, two major Communist parties existed in Sweden (Kennerström 1976). The first, the Swedish Communist Party (*Sverges kommunistiska parti*), led by Hugo Sillén, operated under the auspices of the Communist International in Moscow. The second, the Socialist Party of Sweden (*Socialistiska partiet*), led by Karl Kilbom, severed relations with Moscow and condemned Stalinism. In 1937, Kilbom was expelled as the leadership passed to Nils Flyg, under whom the Socialist Party adopted elements of German National Socialism. It was members of the Swedish Communist Party affiliated with the Communist International, known in Swedish historiography as *sillénare*, who actively travelled to the Soviet Union for work and study.

Two additional Swedish communities with tsarist-era roots existed in Baku and Saint Petersburg (renamed Leningrad in 1924). The so-called Baku-Swedes (Swe. *Baku-svenskarna*) were former employees at the Nobel oil enterprises in the Caucasus. Not all left Azerbaijan after the 1917 Revolution and the nationalisation of the Nobel company. Bengt Jangfeldt has claimed that only about twenty Swedes remained in Leningrad after 1924, the last being Alexander Tullander, who returned to Sweden with his family in 1937 (Jangfeldt 1998: 299). Our material indicates, however, that in 1937 around thirty Swedes from Sweden (including those who had accepted Soviet citizenship) lived in the city. Some suffered during the Great Terror; others managed to return to Sweden.

Gylling was arrested by the NKVD in 1937 and executed in Moscow in 1938; the site of his grave remains unknown. His wife Fanny Gylling, a Finland-Swede, was sentenced in 1938 as a "wife of an enemy of the people" to eight years' imprisonment and died in the Gulag. Allan Wallenius was arrested in 1938 and died in prison in 1942. His second wife, Edith Rudquist, born in the USA to Swedish immigrant parents, survived the Great Terror but died in Moscow in 1943. The arrests of Gylling and Wallenius symbolised the end of Nordic socialist projects in the Soviet Union. Many ordinary Swedes in Gammalsvenskby and Karelia were arrested and murdered by the NKVD without trial (Takala 1998; Takala 2018; Kotljarchuk 2014a; Kotljarchuk & Nilsson 2021). At the same time, a substantial number of Swedes survived. This paper seeks to explain the factors that shaped death and survival among Soviet-Swedes in the interwar USSR.

Swedes in the National Operations of the NKVD

In the summer of 1937, the Politburo ordered the NKVD to initiate "national operations" targeting various ethnic minorities (Martin 1998; Nikolskiy 2001; Werth 2003). The largest was the Polish operation, in which 139,815 people were arrested and 111,071 executed (Morris 2004). During the German operation, 56,787 were arrested and 41,898 executed (Schafranek & Musienko 2003; Dönninghaus 2009). Its epicentre lay in borderland Ukraine rather than in the Volga-German Autonomous Republic. According to Ukrainian historians Volodymyr Semystyaha and Igor Tatarinov, Germans constituted around 10 per cent of all victims of the Great Terror in Ukraine, while the group made up only 1.5 per cent (c. 408,000) of the republic's population in 1937 (Semystyaha & Tatarinov 2015). A further 17,851 Latvians were arrested, 13,444 of whom were executed (Kott 2007). The operation against Finns claimed over 12,000 victims, with 9,078 executed (Takala 2018). Additional national operations targeted Greek, Bulgarian, Romanian and Iranian diasporas. The NKVD also ran smaller "national lines," such as an Estonian line within the Latvian operation and a Sami line within the Finnish operation.

In total, 335,513 people were arrested between July 1937 and November 1938 by the NKVD as a part of national operations, of whom more than 70 per cent were executed (Werth 2003: 232). State terror was devastating for small groups, especially those lacking diplomatic protection from a "homeland." On the Kola Peninsula, mass arrests sharply reduced the tiny Sami population. A significant share (11.5%) of Sami victims belonged to the native intelligentsia fostered by the Bolsheviks during the

1920s (Kotljarchuk 2012), with long-term consequences for the present-day vulnerability of the Kola Sami (Kotljarchuk 2019).

No specific national operation or line targeted Swedes. Moreover, unlike indigenous Finno-Ugric peoples or Russian Greeks, Swedes with personal or family ties to Sweden could seek assistance from the Swedish diplomatic missions. In autumn 1937, the Swedish embassy in Moscow and the general consulate in Leningrad initiated a large-scale, discreet humanitarian action to:

(a) provide consular aid to Swedes arrested by the NKVD across the USSR;
(b) in cooperation with the Finnish embassy, evacuate Swedish citizens with valid passports by train from Moscow or Leningrad to Helsinki;
(c) assist native Swedes with personal or family links to Sweden in restoring their Swedish citizenship and issuing new passports;
(d) extend Swedish citizenship to non-Swedish spouses of Swedish citizens and to adult children, and to facilitate formal renunciation of Soviet citizenship;
(e) purchase international train tickets in foreign currency (possession of which was prohibited for Soviet citizens);
(f) escort Swedish subjects to the Moscow–Leningrad–Helsinki international express.[5]

This forgotten Swedish humanitarian operation, conducted at the height of the Great Terror, proved strikingly effective: hundreds of Swedes returned home or to their historical homeland with diplomatic assistance (Nilsson & Kotljarchuk 2022). In the process, the Swedish Foreign Office gathered substantial information on Soviet-Swedes, their partners and children, including many names previously unknown to scholarship. Yet several Swedes, including some who had contacted the embassy, were nonetheless caught in the maelstrom. This raises new questions: How did class, gender, personal background and geography affect the trajectories of Swedish citizens under Stalin's dictatorship? Who survived, who became victims, and why? We argue that mapping the interwar Swedish diaspora helps answer these questions.

About the Source Material

The dataset combines records from the National Archives of Sweden (Stockholm), the former Comintern Archives (Moscow), and several databases maintained by Memorial, the NGO founded in 1989 in the Soviet Union and dedicated to documenting victims of Stalinism. Although Memorial was banned in Russia in 2021, the organisation continues to operate internationally.

The archives of the Swedish Foreign Office (Swe. *Utrikesdepartementet*) contain several relevant collections, divided between the main repository in Stockholm and its branch in Täby, a municipality in Stockholm County. The material is also fragmented owing to differing transfer dates. The core of this study is formed by nationality

[5] These diplomatic measures are summarised by the authors from source material in the National Archives of Sweden (Riksarkivet, Stockholm): Rättsavdelningen, 1918–1969 R 67; Avdelning HP 514, Grupp 1, vol. LXI (June–September 1937) and vol. LXII (1938).

registers (Swe. *nationalitetsmatriklar*) maintained by Swedish diplomats in Moscow and Leningrad. These registers, identified in the National Archives by Torbjörn Nilsson, professor of history at Södertörn University (Nilsson 2024), record only those Swedes who contacted Swedish diplomatic mission. Many individuals, e.g., a lot of Swedish communists, never did. Supplementary records include scattered files concerning Swedes who requested assistance, inquiries from relatives in Sweden, lists of returning citizens or missing persons, and applications for citizenship and/or passports.

We supplemented these sources with entries (in Russian) from Memorial's digital databases of victims of Soviet terror. Among the databases consulted were: (1) Victims of the Political Terror in the USSR (Ru. *Жертвы политического террора в СССР*; alphabetical search); (2) Victims of the Political Terror in the USSR (Ru. *Жертвы политического террора в СССР*; searchable by name, birthplace and year of birth); (3) Restored Names (Ru. *Возвращенные имена*), covering north-western Russia; and (4) the Memorial Book of Murmansk Oblast (Ru. *Книга памяти Мурманской области*).

Finally, we drew on inventories and extracts from personal files of Swedish communists in the Archives of the Executive Committee of the Communist International (now part of the Russian State Archive of Political History). One of the authors copied the inventory and did extracts in 2012.

Individual Trajectories and Methodological Challenges

Our research process proceeds in three directions. First, we conduct a quantitative analysis of the collected data. Second, we combine quantitative analysis with microhistorical reconstruction to increase the precision of general data. Third, we carry out a comparative reading of personal files in Swedish and Russian in order to identify and trace as many individual trajectories as possible. Language proved to be a persistent problem. In many instances it proved difficult to match persons recorded by the Swedish Foreign Office with entries in Memorial's databases (and vice versa). Since the Memorial databases draw on former NKVD-MGB-KGB archives, discrepancies are common: NKVD officers frequently transliterated Swedish names into Russian phonetically, and often poorly, leading to multiple misspellings of personal names and place names. We also identified many Kiruna-Swedes whom the NKVD categorised as "Finnish nationals" despite Swedish citizenship.

The following examples illustrate the problem. Ernst Eriksson, born in Saittarova (Pajala municipality in Sweden), a railway worker executed at Kem in 1938, appears in NKVD records as "a Finn born in Ruotsi" (*Ruotsi* is Finnish for Sweden). Carl Niemi, a SKP member executed in Karelia in 1938, was born in 1874 in Pajala, but his birthplace is rendered in Finnish-like form as Pojalan-Kyulia (Поялан-Кюля) from a Finnish name of Pajala, *Pajalan kylä*. Presumably interrogated in Finnish, Carl Niemi was classified as a Finn despite Swedish citizenship. Jakob Einar Passi born in the Swedish town of Luleå, a lumberjack executed in Karelia in 1938, appears as "a Finn from Lulaln," Ilmari Kunnunen (born 1913 in the Swedish town of Kiruna), a Swedish citizen executed in Karelia in 1938, is recorded as "a Finn from Kirup." Another "Finnish national," Helge Kensonen (a Swedish citizen born in Kiruna in 1915), is

recorded as Helge Karlovich Kenzhonen, born in "Kirgutsa." Erik Janson (born 1897 in the Swedish village of Valbo), a sawmill worker and SKP member arrested in 1938, likewise appears as "a Finn." Bertil Thörn, a mining engineer and SKP member sentenced in Murmansk to 10 years incommunicado, appears as Berl Antonovich Tern. Birger Seppälä, an SKP member and worker at the Petrozavodsk ski factory executed in 1938, appears in Soviet records as Berger Vilyamovich Seppelya.

Correlating Swedish and Russian language records often demanded extensive effort. A woman known in Swedish documents as Rika Gawatin appears in Soviet records as Riki Meerovna Gavatina-Ortman (Рики Мееровна Гаватина-Ортман). We established that she was born in 1886 to a Jewish family in Germany as Rika Baruch; she was a professional dentist and a member of the German Communist Party. Her first husband, Wolfgang Ortmann, was a well-known German illustrator. In 1933, after Hitler's rise to power, she emigrated to Sweden, divorced and remarried Leopold Gawatin, a Swedish citizen of Jewish descent. Professor Nilsson located records indicating that in the mid-1930s the Gawatins, as Swedish citizens, emigrated to the Soviet Union (Nilsson 2024: 44). Both were arrested by the NKVD in 1937 on charges of "Swedish espionage" and, despite diplomatic interventions from the Swedish embassy, were sent to the Gulag. Their fate remained unknown to Swedish authorities. We found that Rika Gawatin was executed in the NKVD prison in Orel in September 1941 on the eve of the Nazi assault on the city. As a Jew, a political émigré from Germany and a Swedish citizen, she had very limited chances of survival under either dictatorship.

Further examples abound. Per Yngve Åkerman, an SKP member and senior engineer in Arkhangelsk executed in Moscow in 1938, appears in Soviet files as Petr Petrovich Okerman. Hilda Petersson från Jämtland, an SKP member sentenced in 1937 to eight years' imprisonment, appears as Hulda-Eugenia Aleksandrova-Peterson; her native region, Jämtland, is rendered in Russian as Optiyamb (Оптиямб губ). "Yunis Yunasovich Yunson," born 1875 in *Suisval*, turns out to be Jonas Jonsson, a Swedish citizen and SKP member born in Alnö near Sundsvall.

While such issues complicate verification and impose limits on our study, the comparative approach enabled substantial corrections to earlier data, especially concerning Swedish communists active in the Soviet Union. This pertains both to forgotten names and to instances where the same individual appears under multiple aliases. Access to the SKP archives shows that many communists operated in the Soviet Union under party pseudonyms. We discovered, for example, that two prominent SKP members: Erik Karlsson and Paul Söderman were known in the USSR as comrades Karl Johansson and Karl Lindroos. Consequently, the biographical list of Kiruna-Swedes published by journalist Kaa Eneberg contains serious errors, listing Paul Söderman, Karl Lindroos, Erik Karlsson and Karl Johansson as four different individuals (Eneberg 2003), when in fact there are two.

Transforming heterogeneous lists into a meaningful statistical overview posed further challenges. Consider the "class" variable. Most entries recorded a profession (and in rare cases a status such as "widow," "maiden," or "noble"). We therefore proxied "class" by occupational indicators, assigning spouses or family members without specified occupations to the class of the recorded family member. After weighing research usefulness against data availability, we employed seven categories plus "not

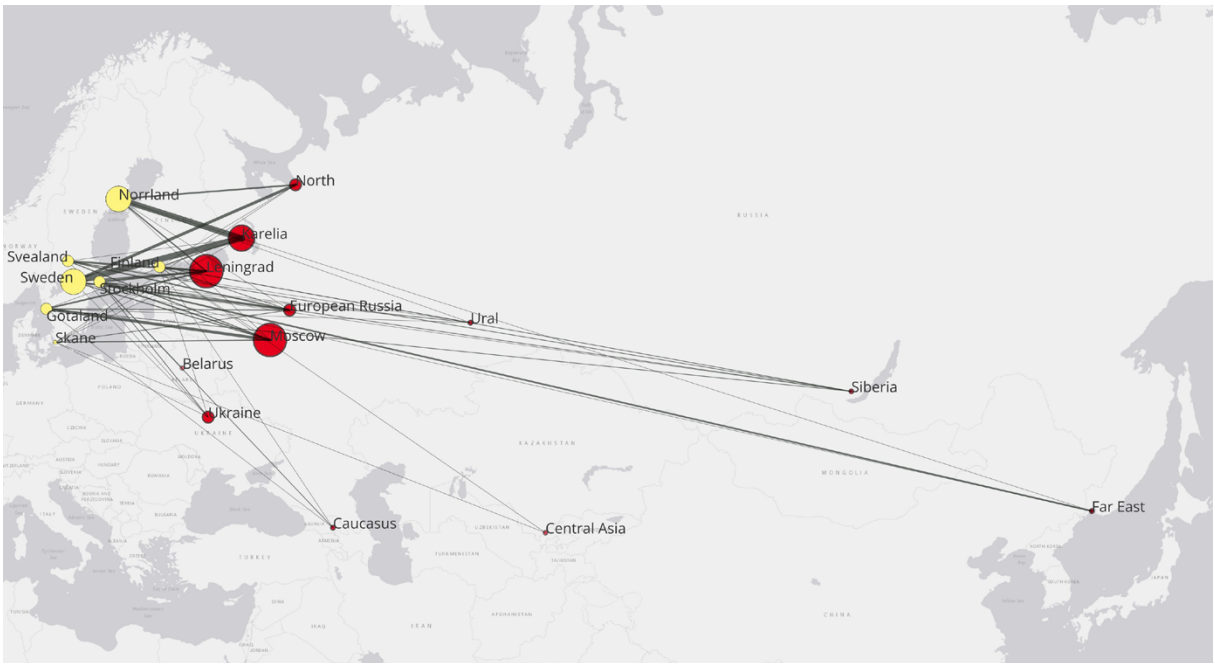
specified": "working class," "agricultural," "intelligentsia/artist," "professional/clerk/teacher/specialist," "upper middle class," "bureaucrat," and "nobility."

Inevitably, such categorisation removes nuance and may induce a kind of double translation. First, the initial data gathering (for instance by the Swedish Foreign Office or the NKVD) could be faulty. Beyond evident mis-renderings of names, places and nationalities, human error and institutional categories might have oversimplified complex realities. Second, our own aggregation into broad categories necessarily simplifies. This is not inherently problematic, provided that the limitations are acknowledged. The dataset presented here comprises 458 individuals; it is almost certainly not exhaustive of all Swedes in the USSR during the 1930s. Of the 2,495 Swedes recorded in the 1926 census, 1,874 reported Swedish as their first language (All-Union Population Census of 17 December 1926, 1928: 62). Strikingly, the 1937 census recorded only 20 Swedes (Zhiromskaya & Polyakov 2007: 90), whereas the 1939 census listed 1,519 (Polyakov 1992). This discrepancy cannot be explained by natural demographic change alone. A likely factor is changing methodology. In 1926, respondents were asked to state their *narodnost'* ('nationality/ethnicity'), with foreign nationals instructed to report their country of citizenship (TsSU SSSR 1928: III). The 1937 form asked for *natsionalnost'*, instructing clerks simply to record the nationality the interviewee claimed (Zhiromskaya & Polyakov 2007: 277). The 1939 census retained *natsionalnost'* but explicitly encouraged the recording of nationalities and languages beyond the USSR's titular nationalities (Polyakov 1992: 14). Self-censorship likely also played a role: amid the 1937 peak of the Great Terror and a climate of suspicion toward foreigners, many may have avoided identifying as Swedish.

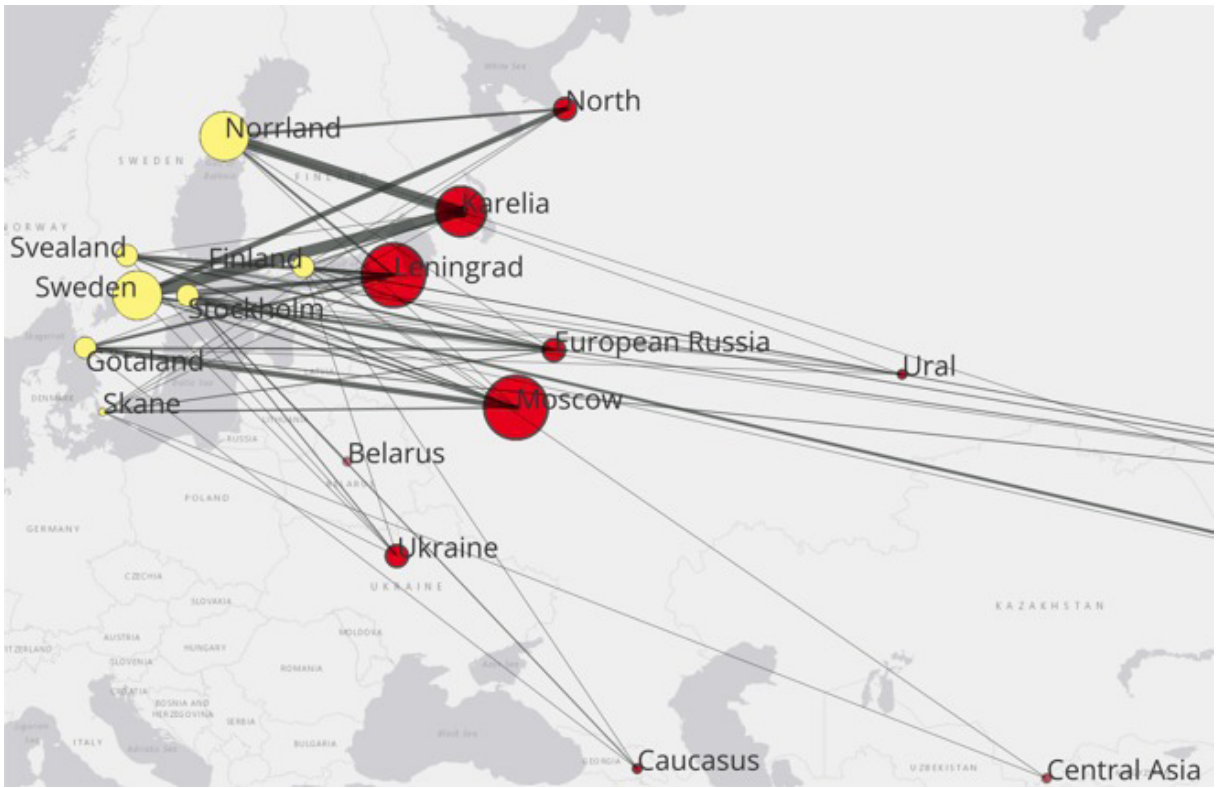
Given source plurality and sample size, we consider our dataset to represent a substantial share of Swedes in the Soviet Union during the 1930s. Nilsson estimates that "nearly 700 adults of Swedish origin can be found in the archives as residents of the Soviet Union for shorter or longer periods in the 1920s and 1930s" (Nilsson 2024: 40). Focusing on the 1930s and excluding children, our sample of 458 persons fits well with this estimate, though sampling biases cannot be entirely excluded.

Quantitative Analysis of the Collected Data

As Map 1 indicates, the Swedish-born population is grouped into six regions: Norrland, Svealand, Götaland, Stockholm, Scania, and Sweden (unspecified). For those born outside Sweden (not represented on the map), we use nine categories: Russia, Finland, Poland, Azerbaijan, Georgia, Ukraine, the Baltics, Norway, and the USA (single entry). Circle sizes indicate relative frequencies. Lines represent migration from place of birth (in Sweden or Finland) to place of residence in the USSR. Among those with a specified birthplace in Sweden, the largest contingent comes from Norrland (59 individuals). 68 individuals originated from unspecified locations in Sweden, and 144 were born in the Russian Empire.



Map 1. Routes of emigration and geographical composition of the Swedish diaspora in the Soviet Union. Location of birth (yellow) and habitation (red) within the USSR. Locations are approximate, based on categorical coding. Persons born in the Russian Empire are not represented in this map. Source: authors' calculations based on archival analysis. Maps were produced with the open-source software QGIS.

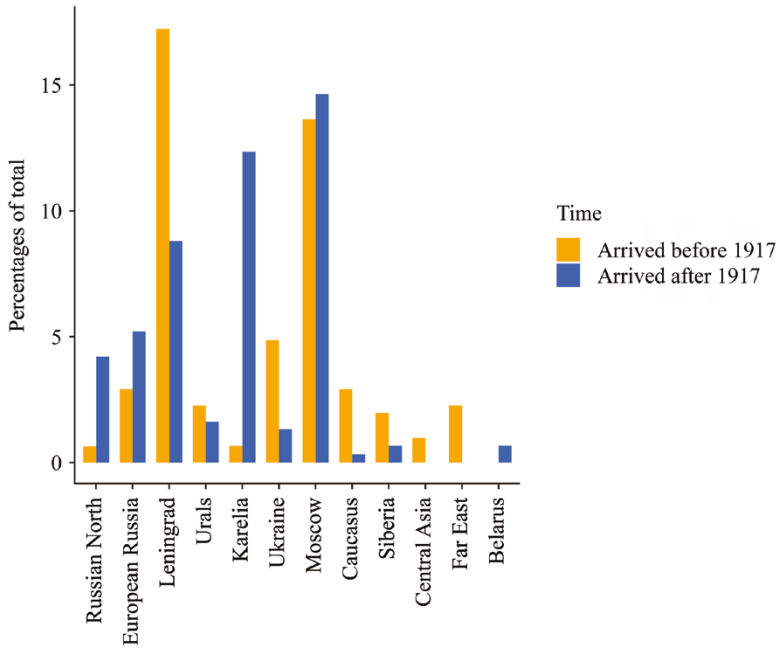


Map 2. Detail of the previous map (Map 1). Size of the lines is scaled to the amount of people.

The details clarifiy the migratory pattern: a majority of Swedish immigrants from Norrland settled in Karelia, with smaller numbers residing in the Russian North (e.g. around Arkhangelsk) and in Leningrad and Moscow. The sizeable flow from "Sweden (unspecified)" to Karelia likely includes a portion of the Kiruna-Swedes.

Below is a chart that further specifies the migratory patterns of Swedes in the Soviet Union. The chart distinguishes those who arrived before 1917 or were born in the Russian Empire (yellow) from those who arrived thereafter. Individuals for whom the timing could not be determined are excluded. Those residing in the Russian North and in Karelia arrived almost exclusively after the 1917 Revolution, whereas Leningrad and Moscow include relatively large shares of Swedes resident before 1917. This corroborates the picture of labour migrants settling in Karelia and the Russian North, while pre-revolutionary Swedish communities persisted mainly in Leningrad and Moscow.

Fig. 1. Chart of location and moment of arrival.



The chart below illustrates the professional and class composition associated with each location category. Particularly notable is the marked class homogeneity among Swedes in Karelia, who were predominantly of working-class origin. These findings from the quantitative analysis corroborate earlier qualitative research on Kiruna-Swedes in the Soviet Union (Gustafsson 2006; Golubev & Takala 2014).

Fig. 2. Chart representing percentages of class variable within each location.

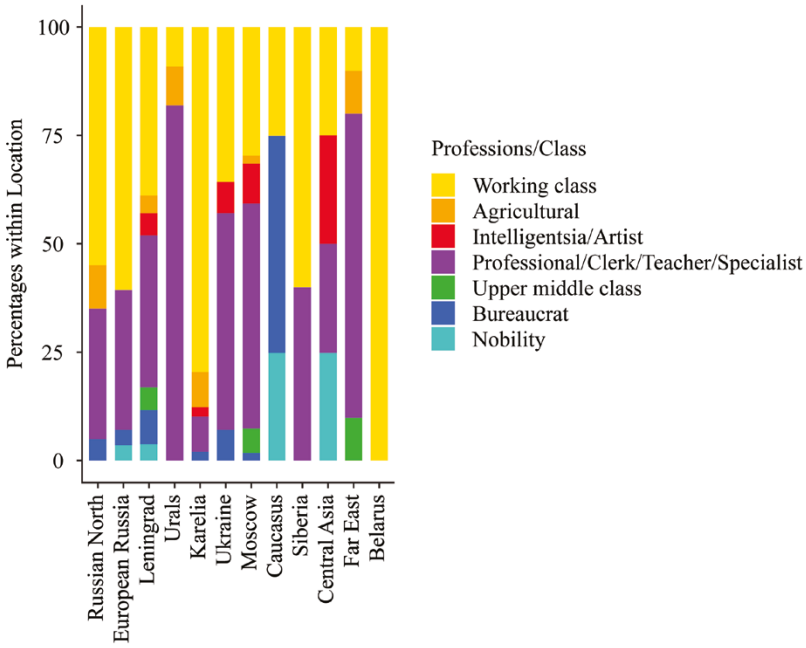
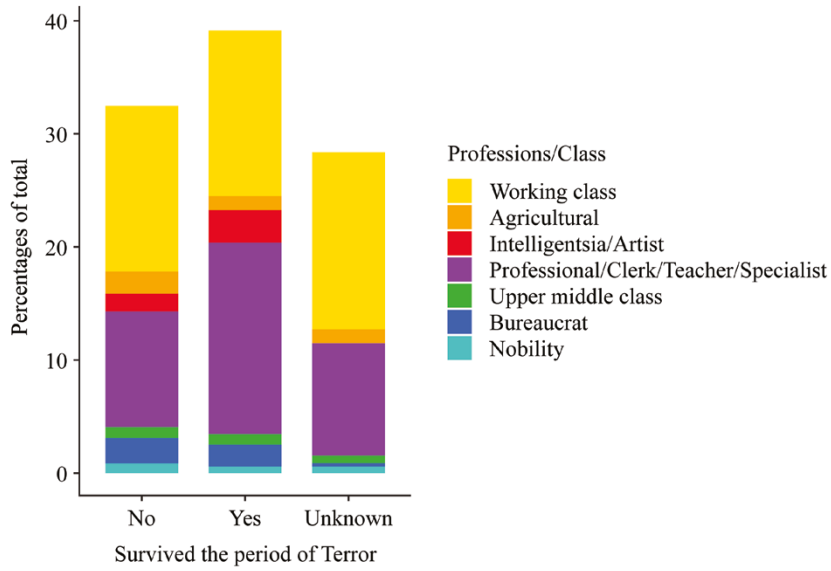


Fig. 3. Chart showing the distribution of the class variable within the binary variable of "surviving the period of terror."



An important variable applied in our analysis is the binary indicator "survived the period of terror." We employ a broad definition of the "period of terror," encompassing both the 1930s and 1940s, in recognition of the continued arrests of Swedish nationals after 1938. Unfortunately, archival materials from the 1950s and 1960s concerning Swedes who "disappeared" in the interwar Soviet Union, as well as those who survived and later returned, remain classified at the National Archives in Stockholm, thereby limiting the scope of our analysis.

An interesting finding emerging from the examination of the Swedish sample is the apparent lack of influence of social class on the likelihood of survival during Stalin's rule. More than 30 per cent of individuals in the sample are known not to have survived the period of terror, with many perishing through execution or in labour camps. As the chart above indicates, class does not appear to have been a significant determinant of survival, as the class compositions of those who survived and those who did not are relatively similar. The same contingency is presented in tabular form below.

Table 1. Contingency table based on the same data as the bar chart above omitting entries for which there was no conclusive data.

	Survived the period of terror		
Profession/Class	**No**	**Yes**	**Total**
Working class	46	46	92
Agricultural	6	4	10
Intelligentsia	5	9	14
Specialist/Clerk	32	53	85
Middle Class	3	3	6
Bureaucrat	7	6	13
Nobility	3	2	5
Total	**102**	**123**	**225**

Conducting a chi-squared test yields a χ^2 value of 5.09 with a pvalue of 0.532, indicating no statistically significant difference among class groups with respect to the binary variable of survival. It should be noted that the sample size is relatively small, owing to the substantial number of missing data points for individuals whose class or profession could not be reliably established. Likewise, no significant association was found between class and the binary variable of having been sentenced to imprisonment or labourcamp terms. One variable that did demonstrate a statistically significant effect on survival was gender: men were disproportionately represented among those who did not survive the period of terror. A chi-squared test for the contingency table below produces a χ^2 value of 14.3 with a significance level of $p < 0.001$, indicating a strong and highly significant dependence. This pattern is also immediately evident from inspection of the table: in this sample, half of the men did not survive, compared with 30 per cent of the women.

Table 2. Contingency table containing the binary variables "gender" and "survived the period of terror."

	Survived the period of terror		
Gender	**no**	**yes**	**Total**
M	103	98	201
F	29	73	102
Total	**132**	**171**	**303**

Finally, it is useful to examine the statistics concerning those individuals who left the Soviet Union. It should first be noted that, within the total sample, 145 out of 458 individuals (approximately 30%) can be definitively established as having departed. The true proportion is likely higher, but this figure represents a conservative lower bound for our dataset. The table below presents this variable contingent on location of residence, excluding individuals for whom no clear place of residence could be determined. As the table shows, those residing in Northern Russia and Karelia corresponding largely to the group often referred to as the Kiruna-Swedes were far less likely to emigrate (0% and approximately 10%, respectively) compared with individuals in other major population centres such as Moscow and Leningrad, where the proportions were around 30 per cent and 40 per cent, respectively.

Table 3. Contingency table with the variables "Moved out of SU" and location of residence.

	Moved out of SU		
Location	**No/unclear**	**Yes**	**Total**
Northern Russia	24	0	24
European Russia	22	15	37
Leningrad	54	38	92
Urals	9	7	16
Karelia	57	6	63
Ukraine	11	14	25
Moscow	73	31	104
Caucasus	10	4	14
Siberia	8	2	10
Central Asia	4	1	5
Far East	10	3	13
Belarus	3	0	3
Total	**285**	**121**	**406**

The time of arrival appears to have no discernible effect on the likelihood of individuals leaving the Soviet Union (see Table 4 below), as the proportions leaving and remaining are relatively similar across categories. In contrast, the factor of immigration origin does seem to be significant (see Table 5). Individuals born in the Russian Empire were more likely to emigrate from the Soviet Union, with nearly half (~45%) of this group in our dataset leaving. Among those born in Sweden, 75 out of a total of 256 individuals (~30%) emigrated. This correlation is statistically significant ($\chi^2 \approx 9.3$; $p < .01$).

It must be emphasized that these percentages represent lower bounds based on the available dataset, and the actual proportions may be higher. Moreover, because individuals who did not survive the period are included in the category "did not move out of the Soviet Union," the observed effect may reflect mortality rates rather than successful emigration. This interpretation is clarified in Table 6, which presents the same contingency table restricted to those who survived the terror. In this filtered sample, the effect disappears, although the sample size is too small to support statistically robust conclusions.

Table 4. Contingency table with the variables "Moved out of SU" and time of arrival.

	Moved out of SU		
Arrived	**No/ unclear**	**Yes**	**Total**
Before 1917 (including those born in the Russian Empire)	112	67	179
After 1917	109	57	166
Total	**221**	**124**	**345**

Table 5. Contingency table with the variables "Moved out of SU" and location of birth.

	Moved out of SU		
Location of birth	**No/unclear**	**Yes**	**Total**
Russian Empire	62	52	114
Sweden	181	75	256
Total	243	127	370

Table 6. Contingency table with the variables "Moved out of SU" and location of birth, for those who survived.

	Moved out of SU		
Location of birth	**No/unclear but survived**	**Yes**	**Total**
Russian Empire	13	52	65
Sweden	17	69	86
Total	**30**	**121**	**151**

Conclusion

Our results suggest that the Swedish diaspora can be divided into seven groups by personal background, geography, timing of emigration and fate in the interwar Soviet Union:

I. Kiruna-Swedes. The sample contains detailed personal data for 60 Kiruna-Swedes, many of whom settled in the Karelian-Finnish Republic, though not exclusively so; some worked in Leningrad, Moscow and Kharkiv. At least 12 returned to Sweden, at least 11 did not survive the terror, and the fates of the remainder are unknown.
II. Members of the SKP aligned with the Communist International. Most "voluntarily" accepted Soviet citizenship, seeking social benefits or under NKVD pressure not to renew residence permits, and thereby lost Swedish citizenship, since dual nationality was not recognised by Soviet authorities. As a result, they often remain invisible in Swedish records. This group appears over-represented in Memorial's databases of Great Terror victims, though further research is required.
III. Professionals, engineers and technical specialists (roughly 120 persons). Most were born in tsarist Russia to Swedish immigrant families; a smaller number immigrated in the early 1930s as invited specialists for industrialisation and plant construction. As a rule, they retained Swedish citizenship. A sizable share of this group (about 40%) succeeded in leaving the USSR.
IV. Swedes born in tsarist Russia (144 names), who together with non-Swedish spouses and children retained Swedish passports. According to our findings, 52 left the USSR.
V. Baku-Swedes as a distinct group of c. 40 individuals. Our sample includes detailed data on 14 adult Swedish citizens in the Caucasus, nine of whom resided in Baku. Families typically comprised Swedish-born men married to local women of various ethnic origins and their Russian-, Armenian- and Azeri-speaking children. Four of the nine families in our dataset left the USSR.
VI. Ukrainian Old-Swedes. In 1937–1938, 22 individuals (predominantly men) were arrested by the NKVD as members of a fictitious espionage organisation and shot in Kherson. The Swedish embassy could not assist, as Moscow regarded them as Soviet subjects; few appear in Swedish records.
VIII. Russian widows or divorcées of deceased Swedish men. Approximately 20 such cases appear in Swedish Foreign Office files. Most received regular financial support from the Swedish embassy. They did not suffer directly in the Great Terror owing to natural death or repatriation to Sweden.

The results of quantitative analysis that combined with micro-level study of personal files clarifies who became targets of Soviet terror, who survived, and why. It also illuminates correlations among class, geography, timing of emigration and citizenship. Outcomes varied markedly across categories of Soviet-Swedes. There was no discernible correlation between class and survival. However, the Kiruna-Swedes, bilingual immigrants from northern Sweden, faced heightened risk of arrest and are over-

represented among Swedish victims of the national operations. They were also far less likely to emigrate out of the Soviet Union than Swedes in major population centres like Moscow and Leningrad. Many fell under the Finnish operation of the NKVD despite lacking Finnish citizenship and previous residence in Finland. The reason was bureaucratic: following Stalin's definition of nationality, the NKVD privileged native language and culture over country of origin and citizenship. Consequently, the Karelian NKVD classified Kiruna-Swedes as "Finns" because they spoke Finnish and participated in Finnish public life in Karelia (Nilsson & Kotljarchuk 2022: 479–480). The NKVD sought to "cleanse" Karelian society of all kinds of Finns, which is, Finnish-speaking people who had come not only from Finland but also from Sweden, Norway, the USA and Canada. Many had accepted Soviet citizenship, which diminished their chances of survival. Some crossed the Soviet Finnish border illegally. Only immigrants who retained Swedish citizenship could count on effective diplomatic assistance, enabling departure and survival during the Great Terror.

As shown, the timing of emigration to the Soviet Union does not exert any discernible influence on the likelihood that individuals would later leave the country. By contrast, geographical remoteness appears to have played a significant role. The long distance from Karelia to the Swedish embassy in Moscow, especially after the general consulate in Leningrad was closed by the Soviet authorities in January 1938, shaped both the magnitude and direction of repression. Those who departed Karelia swiftly for Moscow and were able to make personal contact with Swedish diplomats had a greater chance of survival and eventual repatriation. Some individuals waited for months in rented apartments in Moscow while their Swedish citizenship was restored. Once new passports were issued, they were permitted to remain within the diplomatic compound for several days before departure to Sweden via Finland; for security reasons, diplomatic staff escorted Soviet-Swedes to the Leningrad railway station in Moscow.[6]

A second high-risk group comprised the members of the Swedish Communist Party. Because many of them had accepted Soviet citizenship, the Swedish embassy's ability to assist was sharply constrained. In the 1930s, numerous Swedish communists were arrested on espionage charges and either executed without trial or sent to the Gulag. Only a few survived and returned through intensive Swedish diplomatic efforts. Among them, as currently known, Edvin Blom, Wagner Hansson, Einar Holm, Bertil Johansson, Axel Karlsson, Gösta Keskitala, Karl Georg Nilsson, Elin Lehtonen and Konrad Sinclair Söderberg (Kotljarchuk & Nilsson 2021).

Finally, we can conclude that the Swedish embassy's response differed starkly from that of Nazi Germany's mission. Following instructions from Berlin, German diplomats in Moscow refused aid to many citizens of the Third Reich and Austria, which was annexed by Germany after the Anschluss in March 1938. This concerns especially communists and those they labelled "persons of alien race," i.e. German citizens of Jewish origin (Vatlin 2011: 175–182). By contrast, as representatives of

[6] In 1938, the staff of the Swedish embassy in Moscow consisted of six professional diplomats: Ambassador Extraordinary and Plenipotentiary Otto Wilhelm Winther; Counsellor and Press Attaché Nils Lindh; First Secretary Sten Hansson von Euler-Chelpin; Second Secretary Eng Brynolf; Military Attaché Major Carl Vrang; and Head of the Chancellery Georg Nyström. Nils Lindh had served in the USSR since 1924 and spoke fluent Russian.

a democratic state governed by the rule of law, Swedish diplomats sought to assist every national subject irrespective of political affiliation, class, ethnicity or personal background (Nilsson & Kotljarchuk 2022). As a result, many Swedes survived and returned home. The success of this neglected humanitarian operation also rested on relatively functional Swedish–Soviet relations, anchored in Sweden's neutrality, profitable bilateral trade, and the absence of a common border and direct military conflict since 1809. Experience gained in the interwar Soviet Union may have informed Sweden's large-scale humanitarian actions in Germany and in Nazi- and Soviet-occupied countries during the Second World War. However, this is an issue for future research.

REFERENCES

Archival sources

The National Archives of Sweden in Stockholm (Riksarkivet Stockholm).

Avdelning HP 514. Grupp 1. M l: Er. Politisk allm nt. Ryssland: vol. LXI juni 1937–september 1937; vol. LXII. 1938.

Beskickningsarkiv Moskva 1918–1989. Nationalitetsmatriklar 1924–1938. Medborgarskap 1937–1940. Inkommande diarium för 1937, 1938.

Konsulatarkiv Leningrad 1875–1939. Nationalitetsmatrikel 1931–1938. Inkommande diarium för 1937, 1938.

Rättsavdelningen, 1918–1969 R 67. Utvisningar från Ryssland.

The Archives of the Executive Committee of the Communist International 1919–1943 in the Russian State Archives of Political History (RGASPI), Moscow.

Communist Party of Sweden (Коммунистическая партия Швеции). Fond 495, opis 275.

Printed Sources

Polyakov, Y. (1992). *Всесоюзная перепись населения 1939 года. Основные итоги* ['All-union population census of 1939. The basic results'], Moscow: Nauka.

TsSU SSSR = Tsentral'noe Statisticheskoye Upravlenie SSSR (1928). *Всесоюзная перепись населения 17 Декабря 1926 г. Краткие сводки выпуск IV. Народность и родной язык населения СССР.* ['All-union population census of 17 December 1926. Part IV. Ethnicity and mother language of the population of the USSR'], Moscow: Tsentral'noe Statisticheskoye Upravlenie SSSR.

Zhiromskaya, V. & Polyakov, Y. (2007). *Всесоюзная Перепись Населения 1937 года. Общие итоги. Сборник документов и материалов* ['All-union population census of 1937. Collection of documents and materials'], Moscow: ROSSPEN.

Digital Databases

All-Soviet censuses database, http://demoscope.ru

Memory book of the Murmansk region. Книга памяти Мурманской области; https://ru.openlist.wiki; accessed on 13 Feb. 2026.

Restored names. Возвращенные имена; https://visz.nlr.ru; accessed on 13 Feb. 2026.

Victims of the political terror in the USSR [1]. Жертвы политического террора в СССР; https://lists.memo.ru; accessed on 13 Feb. 2026.

Victims of the political terror in the USSR [2]. Жертвы политического террора в СССР; https://base.memo.ru; accessed on 13 Feb. 2026.

Literature

Dönninghaus, V. (2009). *Minderheiten in Bedrängnis. Sowjetische Politik gegenüber Deutschen, Polen und anderen Diaspora-Nationalitäten 1917–1938*, Munich: Oldenbourg Verlag.

Eneberg, K. (2003). *Förnekelsens barn. Svenskarna som drog österut* ['Children of denial. The Swedes who headed east'] Stockholm: Hjalmarson & Högberg bokförlag.

Eneberg K. (2004). "Recruitment of Swedish immigrants to Soviet Karelia," in *Karelian Exodus. Finnish Communities in North America and Soviet Karelia during the Depression Era. Special Issue of the Journal of Finnish Studies,* 8:1, eds. R. Harpelle, V. Lindström & A.E. Pogorelskin, pp. 189–200.

Gardberg, A. & Kaihovirta, M. (2022). *Brandtal för världsrevolution. Allan Wallenius och hans röda resor* ['Fiery speech for world revolution. Allan Wallenius and his red journeys'], Helsinki: Svenska folkskolans vänner.

Golubev, A. & Takala, I. (2014). *The Search for a Socialist El Dorado. Finnish Immigration to Soviet Karelia from the United States and Canada in the 1930s*, East Lansing: Michigan State University Press.

Grimlund, O. (1919). *"Mannerheim den blodige" eller "Den vite djävulen"?* ["'Mannerheim the Bloody" or "The White Devil'"?], Stockholm: Fram.

Gustafson, A. (2006). *Svenska sovjetemigranter. Om de svenska kommunisterna och emigrationen till Sovjetunionen på 1920- och 1930-talen* ['Swedish Soviet emigrants. The Swedish communists and their emigration to the Soviet Union in the 1920s and 1930s'], Linköping: Nixon.

Holquist, P. (2001). "To count, to extract, and to exterminate. Population statistics and population politics in late imperial and Soviet Russia," in *A State of Nations. Empire and Nation-Making in the Age of Lenin and Stalin*, eds. R.G. Suny & T. Martin, Oxford: Oxford University Press, pp. 111–144.

Ilic, M. (2000). "The Great Terror in Leningrad. A quantitative analysis," *Europe-Asia Studies*, 52:8, pp. 1515–1534.

Jangfeldt, B. (1998). *Svenska vägar till S:t Petersburg. Kapitel ur historien om svenskarna vid Nevans stränder* ['Swedish paths to St. Petersburg. Chapters from the history of Swedes on the banks of the Neva'], Stockholm: Wahlström & Widstrand.

Kangaspuro, M. (2004). "The Soviet depression and Finnish immigrants in Soviet Karelia," R. Harpelle et al. (eds.), in *Karelian Exodus. Finnish Communities in North America and Soviet Karelia during the Depression Era*. Special Issue of the *Journal of Finnish Studies,* 8:1, eds. R. Harpelle, V. Lindström & A.E. Pogorelskin, pp. 132–140.

Kennerström, B. (1976). "Sprängningen av Sveriges Kommunistiska Parti 1929" ['The 1929 split of the Communist Party of Sweden'], in *Från SKP till VPK. En antologi*, ed. S. Olsson, Lund: Zenit, pp. 82–105.

Kostiainen, A. (1996). "Genocide in Soviet Karelia. Stalin's terror and the Finns of Soviet Karelia," *Scandinavian Journal of History*, 21:4, pp. 331–342.

Kotliartchouk, A. (2024). "Understanding Stalin's terror against western minorities. The national operations of the NKVD in contemporary academic research," *The Historical Journal*, 68:1, pp. 239–257.

Kotljarchuk, A. (2012). "Kola Sami in the Stalinist terror. A quantitative analysis," *Journal of Northern Studies*, 6:2, pp. 59–82.

Kotljarchuk, A. (2014a). *In the Forge of Stalin. Swedish Colonists of Ukraine in Totalitarian Experiments of the Twentieth Century*, Stockholm: Stockholm University Press.

Kotljarchuk, A. (2014b). "The Nordic threat. Soviet ethnic cleansing on the Kola Peninsula," in *The Sea of Identities. A Century of Baltic and East European Experiences with Nationality, Class, and Gender*, ed. N. Götz, Stockholm: Elanders, pp. 53–83.

Kotljarchuk, A. (2014c). "Little Red Sweden in Ukraine. The 1930s Comintern project in Gammalsvenskby," in *The Lost Swedish Tribe. Reapproaching the History of Gammalsvenskby in Ukraine*, eds. P. Wawrzeniuk & J. Malitska, Huddinge: Södertörn University, pp. 111–149.

Kotljarchuk, A. (2019). "Indigenous people, vulnerability and security dilemma. The Sami school education on the Kola Peninsula, ca 1880–1990," in *Sámi Educational History in a Comparative International Perspective*, eds. O. Kortekangas et al., Basingstoke: Palgrave Macmillan, pp. 63–82.

Kotljarchuk, A. & Nilsson, T. (2021). "Finland Swedes, Sweden Finns and the Great Terror in Karelia. Issues of nationality, citizenship and diplomatic assistance," *Nordic and Baltic Studies Review*, 6, pp. 177–197.

Kott, M. (2007). "Soviet genocide in Latvia. Stalin's Great Terror (1937–38) as antecedent and other aspects of the recent historiography," in *Latvijas Okupācijas Muzeja Gadagramāta*, 2007, Riga: Latvijas 50 gadu okupācijas muzeja fonds, pp. 42–54.

Martin, T. (1998). "The origins of Soviet ethnic cleansing," *The Journal of Modern History*, 70:4, pp. 813–861.

Morris, J. (2004). "The Polish terror. Spy mania and ethnic cleansing in the Great Terror," *Europe-Asia Studies*, 50:5, pp. 751–766.

Mustelin, O. (1984). "Allan Wallenius. Biblioteksman, publicist och revolutionär i 1910-talets Finland" ['Allan Wallenius. Librarian, publicist, and revolutionary in Finland of the 1910s'], in *Historiska och litteraturhistoriska studier*, 59, Helsinki: Svenska litteratursällskapet i Finland, pp. 269–389.

Nikolskiy, B. (2001). "Національні аспекти політичних репресій 1937 року в Україні" ['Ethnic aspects of the 1937 political repressions in the Ukraine'], *Ukrayinsky Istoricheskyy Zhurnal*, 2, pp. 74–89.

Nilsson, T. (2024). "Rescued from terror. The unknown Swedish operation in the 1930s," *Baltic Worlds*, 12:1–2, pp. 35–48.

Nilsson, T. & Kotljarchuk, A. (2022). "Svenskt och finskt i mörkt sovjetiskt 1930-tal" ['Swedish and Finnish in the dark Soviet 1930s'], *Historisk tidskrift för Finland*, 107:4, pp. 454–482.

Schafranek, H. & Musienko, N. (2003). "The fictitious 'Hitler-Jugend' conspiracy of the Moscow NKVD," in *Stalin's Terror. High Politics and Mass Repression in the Soviet Union*, eds. B. McLoughlin & K. McDermott, Basingstoke: Palgrave Macmillan, pp 208–224.

Semystyaha, V. & Tatarinov, I. (2015). "The Great Purge in Ukraine. The German operation of the NKVD (1937–38)," in *The Routledge History of Genocide*, eds. C. Carmichael & R.C. Maguire, London: Routledge, pp. 55–76.

Takala, I. (1998). "Национальные операции ОГПУ/НКВД в Карелии" ['National operations of OGPU/NKVD in Karelia'], in *В семье единой. Национальная политика партии большевиков и её осуществление на Северо-Западе России в 1920–1950-е годы* ['In a single family. The national policy of the Bolshevik party and its realisation in Northwestern Russia in the 1920s–1950s'], Petrozavodsk: Petrozavodsk University Press, pp. 161–206.

Takala, I. (2018). "Большой террор в Карелии" ['Great Terror in Karelia'], *Nordic and Baltic Studies Review*, 3, pp. 143–207.

Vatlin, A. (2011). *Ну и нечисть. Немецкая Операция НКВД в Москве и Московской Области, 1936–1941 гг.* ['Scums. The German operation of the NKVD in Moscow and Moscow region, 1936–1941'], Moscow: ROSSPEN.

Werth, N. (2003). "The mechanism of a mass crime. The Great Terror in the Soviet Union, 1937–1938," in *The Specter of Genocide. Mass Murder in Historical Perspective*, eds. R. Gellately & B. Kiernan, Cambridge: Cambridge University Press, pp. 215–239.

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Beñat Elortza Larrea, *Polity Consolidation and Military Transformation in Medieval Scandinavia. A European Perspective, c. 1035–1320,* Leiden: Brill 2023, ISBN 9789004518773, 382 pp.

In *Polity Consolidation and Military Transformation in Medieval Scandinavia*, Beñat Elortza Larrea aims to investigate the political, societal, economic, and military developments in Scandinavia during the High Middle Ages, a period that, as indicated by the title, stretches from the short eleventh century through the long thirteenth century; that is, from the 1030s to the end of the second decade of the 1300s.

Historically, Elortza Larrea argues, scholarship has studied the above-mentioned developments in the context of *Europeanisation*, which he defines as "the adoption of a package of socio-political, economic, military, religious and ideological models that developed in western Europe from the tenth century onwards" (p. 1). The conclusions of such studies have therefore focused on whether or not Scandinavian developments fulfill the criteria of *Europeanisation*. This has led to the establishment of a dichotomy that Elortza Larrea aims to problematise. His fundamental point of departure is that *Europeanisation* need not be seen as the adoption of a complete package, as the developments in western Europe generally used as models are themselves far from homogenous. Rather, *Europeanisation* should be defined as a set of developmental trends in the socio-political, economic, military, religious, and ideological spheres amongst the political entities of western Europe, with varied results based on local conditions. Thus, any study of the *Europeanisation* of political entities in the European peripheries needs to analyse how these western European trends interacted with local conditions to bring about the developments seen in these polities, rather than whether or not these polities adopted set western European models wholesale.

Elortza Larrea begins with two introductory chapters that provide an overview of regional conditions at the start of the period, as well as contemporary European developments, in order to provide the analytical framework and departure point for his empirical chapters. The analysis itself is broadly structured as a tripartite chronological comparative study, examining each realm in turn. Each part consists of parallel investigations of socio-political, economic, and military developments, which are analyzed century by century. Overarching comparisons and conclusions are laid out in the concluding chapter.

Chapter 1 begins with a discussion of theoretical terminology, centred on the use of *State Formation* in previous scholarship. Elortza Larrea problematises this term, and ultimately rejects it entirely, mainly due to issues with *the State* as an analytical concept for the Middle Ages. Instead, he prefers *Polity Consolidation* as a more nuanced term, free from the teleological baggage of the Early Modern model of *the State*, for describing the recurring attempts by the Scandinavian Crowns to exert control over political and military power during the period. The author then problematis-

es the concept of *Europe* in the High Middle Ages, as well as that of *Europeanisation*. He presents the available primary sources for the period, providing a clear and easily followed overview of all available source-types, and provides a methodological discussion of the strengths and weaknesses of each type, as well as a discussion of how the various sources can complement each other to overcome individual weaknesses. For example, he discusses poetic sources as valuable testimonies in their own right, but also considers their value as independent testimonies that can augment and corroborate the details in narrative sources, which places the author amongst a growing number of historians working on medieval military history arguing for more focus on poetic sources within historical research (Livingston 2022: 33–41, 115–118).

The chapter includes an extensive presentation of previous scholarship, and a brief introductory overview of the political and economic situation in the region, as well as a more extensive overview of the military organisation, in the era preceding the timeframe of the study. The author shows they have a strong grasp of the prevailing societal and martial conditions at the beginning of the period, as well as the scholarship surrounding it. The inclusion of a popular historical work in the references stands out as unusual, but that in and of itself does not detract from the overall quality of the outline in any significant way.

Chapter 2 provides an overview of consequential developments in the political, economic, and military spheres in western Europe[1] between the mid-tenth to the thirteenth centuries, establishing a framework to facilitate later comparative analyses with Scandinavian polities and their development. The chapter elucidates the processes that were instrumental in these developments, tying in aspects from governance, finances, and warfare to contextualise them. The chapter is organized chronologically, with the developments in each sphere analyzed century by century, allowing for a well-structured framework detailing the dominant trends of each sub-period, and thereby facilitating clearer connections between developments in the various spheres. The chapter also shows how the spheres of governance, politics, social ties, economics, and military developments are all inter-connected and a fruitful selection to study together for a more complete understanding of each process.

This section, as well as the work overall, would nevertheless have benefited greatly from a discussion on the urban naval levy of England, particularly the role of the Cinque Ports, and its development during the period (Bennett 2021: 193–195). This would provide additional evidence of the heterogeneity of the western European states, as well as add a naval aspect on the continent as a point of comparison, considering the heavy focus on the Scandinavian naval levy in the following chapters of the work.

Chapters 3, 4 and 5 comprise the main body of the study. In these chapters the author details the historical developments in governance, economy, and warfare in the Kingdoms of Denmark, Norway, and Sweden, respectively. Each chapter begins with a brief general overview of the historical background contextualising the following analysis. The analysis is detailed and informative, though at times slightly difficult to follow due to the recurrence of personal names in both the royal and aristocratic kin-groups. Although this is hardly the fault of the author, the appendix, which contains

[1] Defined as the Holy Roman Empire and the French and English kingdoms.

regnal lists for each polity, could perhaps also have included some family trees as an aid to the reader.

The main body of each chapter is divided into subsections titled "Kingship and Royal Power," "Royal and Aristocratic Finances," "Military Organisation," "Strategy and Tactics," and "Martial Equipment," and further organised by century. In this way the socio-political, economic, and military developments are clearly presented, and in a manner where the reader can see the differences and similarities with the European material in Chapter 2, as well as the other Scandinavian kingdoms. In cases where there is a notable lack of scholarly consensus on a specific point, such as between Niels Lund and Gareth Williams on the Danish *lething*, the author provides a detailed overview of each argument, but also takes a stance well supported by the primary sources.

Each topic is explored at length, and the treatment is generally thorough. The author occasionally makes claims that could have warranted further discussion; for example, the perfectly reasonable description of horse armour in the thirteenth century Norwegian *Konungs Skuggsjá* is dismissed as "rather unconvincing" (p. 238) without any further explanation. The analyses of economic developments specifically could also have benefited from more concrete examples. The conclusions in regards to the economic resources available to the respective Crowns are clearly well referenced and as such represent a scholarly consensus, but only in a single instance is this illustrated by an estimate, specifically the annual income the Danish Crown received from the *Stud* tax in the twelfth century. It is possible that the extant evidence is not detailed enough to calculate such estimates for other income sources, but if so that could have been discussed.

The author's own comparative analysis with the *European* developments outlined in Chapter 2 are generally given in the conclusion of each chapter, though certain sections, such as those on martial equipment, draw more parallels with continental developments in the analysis itself than others. Some aspects of the study could perhaps therefore have benefitted from more explicit contextualization within the main body of the chapters, especially where a Scandinavian development appears to have some similarities to a Continental one, but the author treats it as autochthonous.

Chapter 6 summarizes the main results of Chapters 3–5, and draws more overarching parallels between the three polities, drawing in comparisons with European developments from the second chapter, as well as discussing how these developments were adapted to fit local conditions. The chapter also highlights those developments the author considers to be entirely due to local factors, which deviate from the overall continental trends.

Overall the work succeeds in its main argument. Western Europe is itself not a homogenous entity, where trends that are observed within multiple polities on the continent often have wildly different consequences, and Elortza Larrea shows that any study of the *Europeanisation* of the Scandinavian periphery must also account for how local conditions shaped the reception and implementation of those influences, without teetering into the extremes of assimilation on the one hand or local exceptionalism on the other.

The study is a fruitful contribution to the field as there has been a dearth of comparative studies of the three Scandinavian monarchies with such a broad focus that examines the political, administrative, social, economic, and military de-

velopments together. While it could have benefitted from additional proofreading, this does not detract from the overall quality of the work, which is a valuable addition to the scholarly discourse. The analysis itself is holistic and interdisciplinary, and draws upon a variety of scholarship from different fields, including history, archaeology, numismatics, history of philosophy, and art history, to augment the author's reading of the primary source material. The end result is an overall excellent comparative study, and, in addition to its value as a scholarly work, its thorough treatment of quite a broad scope makes it well suited as didactic material, either as a general introduction to the Scandinavian High Middle Ages at undergraduate levels, or at more advanced levels as a case study on *Polity Consolidation*.

References

Bennett, S. (2021). *Elite Participation in the Third Crusade*, Woodbridge: Boydell & Brewer.

Livingston, M. (2022). *Crécy. Battle of Five Kings*, Oxford: Osprey.

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Stefka G. Eriksen, *Oversatt litteratur i middelalderens Norge,* Oslo: Cappelen Damm akademisk 2024, ISBN 9788202753405, 298 pp.

This book deals with translations of medieval literature in Norway. Starting in the thirteenth century, a considerable literary cultural heritage was made available to the Norwegian elite of the time thanks to the many translations produced, primarily during the reign of King Håkon Håkonsson (1217–1263) but also during the reigns of his closest successors. The various kinds of literature made available through these translations are presented in the book, which also provides a picture of those who commissioned the translations, the translators, the readership and why these works often became so popular. There had, of course, been contacts between Norway and continental Europe also prior to the reign of Håkon Håkonsson, and these are addressed in a section on the Europeanisation of Norway. The author points out that the literary activities in Norway must be viewed in relation to writing milieus in Iceland, which is a reasonable starting point. All of this is covered in Chapter 1, which also contains a concluding section on writing, translation and reading in the Middle Ages.

In Chapters 2–11, ten different translations of French, Latin or German origin are presented. The first one is the Old Norse version of one of the best-known romantic stories of the Middle Ages, the legend of Tristan and Isolde, which is a translation of a French verse novel by Thomas d'Angleterre. Motifs from this legend subsequently appeared in many works of Old Norse literature. This is followed by an account of the novels of court poet Chrétien de Troyes, which in Norway appear as *Parcevals saga*, *Ivens saga* and *Erex saga*. French *lais* ['songs'] inspired *Strengleikar*, a collection of 21 short stories about kings, queens, knights and others, and their lives, love affairs, and intrigues, which the reader is acquainted with in Chapter 4. It is not known who

translated *Strengleikar* but there is good reason to assume that it was a clergyman. The following chapter treats of *Möttuls saga*, which belongs to the continental fabliau tradition, a tradition that thematises women's chastity and norms of marital loyalty and solidarity within the court. Next, the author discusses *Elíss saga ok Rósamundar,* which is based on an anonymous French *chanson de geste*. *Pamphilus Saga* stems from a popular Latin pseudo-Ovidian story on the art of love. Another text of Latin origin is a dialogue between personifications of courage and fear, *Viðræða æðru ok hugrekki,* which goes back to a collection of morality texts from the twelfth century, *Moralium dogma philosophorum*. Chapter 8 presents the Old Norse chivalry tale about Didrik of Bern, *Þiðreks Saga*, which is of German origin but also includes older Nordic material about heroes such as Sigurd Fafnesbane. The next chapter is devoted to *Barlaams saga og Josaphats*, a story about the Indian prince Josaphat's meeting with God through the agency of the hermit Barlaam. This is originally a legend about the life of Buddha which over time was given a Christian guise and became very popular in medieval Europe. On pages 187 ff., there is a section well worth reading which aims to approach the sagas' medieval public through a detailed analysis of two of the main manuscripts. This section leaves one wanting more on this topic. *Alexanders Saga* exemplifies a branch of medieval literature dealing with stories of Greek and Roman mythology and history, including texts about the Trojan War (Chapter 10), while *Flóres Saga ok Blankiflúr* and *Partalopa Saga* represent another category of the translated literature which bears resemblances with both chivalry literature and hagiography; in this connection, the Swedish *Eufemiavisorna* (Chapter 11) naturally come to mind.

As can be seen, the survey presents many different literary traditions, genres, and discourses whereby the Norwegian courts and aristocratic circles who read these works were introduced to European continental literature that gave them insights into world history, and religious and chivalrous patterns. However, the translated texts were produced in a context of *lokalproduserte tekster* ['locally produced texts'] such as sermons, royal sagas, pedagogic literature, and administrative texts, as explained in Chapter 12. Chapter 13 provides an overall perspective of the translated literature. Lastly, the author attempts to trace the literary and cultural influence of these texts on later forms of storytelling, and discusses

> *hva denne nye forståelsen av norsk middelalderkultur og historie kan fortelle om oss selv, ikke minst hva grunnen kan være til at disse middelalderfortellingene lever i beste velstående den dag i dag, i en uendelig rekke av filmer, serier, spill och mange andre medier.* (p. 252)
>
> ['what this new understanding of Norwegian medieval literature and history can tell us about ourselves, not least what the reason might be that these medieval stories are still very much alive, in an endless row of films, series, games and many other media.']

However, the author's answers to these interesting questions are only very broadly formulated (p. 266).

The fact that information about content, thematic high points, stylistic charac-

teristics, tradition, and literary influences recurs in many of the individual chapters sometimes makes the presentation a bit mechanical and superficial. There are occasional astute observations in the book, but these tend to get lost in the broad presentation. Unfortunately, overall perspectives also tend to retreat into the background, even though some such perspectives are highlighted in the last chapter. The book is more of an encyclopaedia of the medieval literature treated, but as such it is a well-documented and well-informed work, not least in view of the 820 footnotes.

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Josef Eskhult (ed.), *Georg Stiernhielm. Linguistic Works. Volume 1. Phonology, Morphology, Semiotics, Sound Symbolism and Transformational Grammar and Semantics. Unpublished Manuscripts Edited with Introduction; Georg Stiernhielm. Linguistic Works. Volume 2. Etymology, Historical and Comparative Language Studies and Programme for the Renewal of the Swedish Language. Unpublished Manuscripts and Early Prints Edited with Introduction, Translation of* De linguarum origine praefatio*, and Reception Studies* (Acta Universitatis Upsaliensis. Studia Latina Upsaliensia 38:1–2), Uppsala: Uppsala University 2023, ISBN 9789151311036; 9789151311043, 561 + 544 pp.

The above two volumes are a critical edition of the linguistic works of George Stiernhielm (1598–1672). In the first volume, we are presented with this versatile scholar's texts on phonology, morphology, semiotics, sound symbolism, grammatical variability, and semantics, and in the second one, based on unpublished manuscripts, his texts on etymology and historical and comparative language research, as well as a programme for the renewal of the Swedish language. A great deal of research has been devoted to Stiernhielm's *Hercules*, for example by Hjalmar Lindroth, Axel Friberg, Bernt Olsson, Eva Melkas and Nils Ekedal. Stiernhielm's language theory and lexemes have also been the focus of studies by Carl Ivar Ståhle, and his rhetoric by the abovementioned Bernt Olsson. Stiernhielm stands out as an intellectual giant of his time.

He was born as Göran Olofsson in Vika, Dalarna, the son of mine owner and bailiff Olof Markvardsson and his wife Karin Mattsdotter. After schooling in Uppsala, he departed on a decade-long educational journey to Germany where he pursued studies at the universities of Wittenberg, Greifswald and Helmstedt. His contacts with contemporary great Swedish scholars such as Johannes Bureus and Johan Skytte, as well as with language researchers and historians on the European continent, contributed greatly to his intellectual development.

Chapter 2 presents a well-informed account of other aspects of his fascinating official career, and a following chapter (pp. 83 ff.) treats of his prolific production of both published and unpublished works. The subsequent chapters (pp. 113 ff.) provide context by describing his language theories on the different levels of language and his grammatical-rhetorical theories. Here, Eskhult places Stiernhielm in a history of

science context, which could usefully have been further elaborated. It is interesting to acquaint oneself with Stiernhielm's *Proteus seu instrumentum rhetoricum* (1635) och *Coelum Musarum seu Proteus rhetoricus* (1650–1651); these titles refer to *Proteus,* an ancient sea god said to have had the ability to assume all sorts of shapes. A short chapter (pp. 131–134) deals with the manuscripts and editorial principles.

This is followed in Volume 1 by several source texts on the phonological and morphological building blocks of language, language philosophy and what is summarised in the volume as "transformational Grammar and Semantics." Here one can read about, for example, how Stiernhielm exemplifies in Swedish Plato's sound symbolism (pp. 222 ff.) and how vowels and diphthongs are related to colours (pp. 235 f., cf. Fig. 17 on p. 541). The *Proteus* works referred to above are dealt with in greater detail in Chapters 10 and 11. Introductions in English provide an insight into the content of the various texts. A scholarly critical apparatus, which in Volume 1 comprises over 1,240 notes (and in Volume 2 just under 1,500), provides a wealth of additional information and references to relevant literature.

Volume 1 concludes with a few appendices, a comprehensive bibliography, in which some of the works referred to are missing but can be found in Volume 2, and indices where, as far as Swedish readers are concerned, the Swedish words and dialectal Nordic words (pp. 510–513) are the most interesting.

The introduction to the second volume, which, as mentioned above, deals with etymology, historical and comparative language research, and a programme for the renewal of the Swedish language, starts with a short overview of the existing research on Stiernhielm's comparative works. The author states that in international history of science contexts, Stiernhielm is regarded as a pioneer in the development of the Scythian hypothesis (comprehensibly described on pp. 30 ff.) which precedes ideas of an Indo-European language (pp. 16 ff.). We are also given insights into the political (pp. 22 ff.) and intellectual (pp. 27 ff.) contexts in which he wrote his texts on comparative language research.

One section in this volume treats of the purging of foreign elements in the Swedish language (pp. 69 ff.), and his lexicographical works (pp. 73 ff.). Next follow texts by Stiernhielm's hand on etymology (Chapters 7–9), historical and comparative language research (Chapters 10–13), and the renewal of the Swedish language (Chapters 16–17). The last-mentioned chapters are particularly interesting from a Swedish point of view, not least because they present the Swedish replacements for Latin terms suggested by Stiernhielm (pp. 366 ff.). Moreover, we are acquainted with the texts written in connection with the controversy between Stiernhielm and Johannes Terseus over an interpretation of a few chapters in the Book of Genesis (Chapter 14), as well as with Stiernhielm's own catalogue of his collection of linguistic literature and source texts (Chapter 15). A concluding section in Volume 2 (Chapters 18–21) contains a reception study on Stiernhielm as a historical language researcher and language reformer, and a host of interesting observations. Like the first volume, the second one has an appendix, a bibliography, and various indices where the Swedish words (pp. 505–508) are of particular value.

As can be seen from the above, this edition is rich in its content. Volume 2 has analytical chapters both before and after the actual edition, while in Volume 1 they appear before the edition. One might wonder whether, in the edition as a whole, it

would not have been better to present the analytical sections first and then all the source texts. It is also a bit surprising that the presentations of the editorial principles in Volume 1 (pp. 132–134) and Volume 2 (pp. 87–88) are identical, which seems to indicate that the two volumes can be seen as separate editorial projects. This, however, does not detract from the fact that this edition is a valuable collection of sources, also for scholars of Nordic languages. In addition, the volumes provide an insightful picture of a fascinating and eminent giant of learning—Stiernhielm is obviously so much more than just the author of *Hercules*.

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Ryan Foster & Christian Cooijmans (eds.), *History, Landscape, and Language in the Northern Isles and Caithness. 'A'm grippit dis land.' A Gedenkschrift for Doreen Waugh* (The North Atlantic World 6), Turnhout: Brepols 2023, ISBN 9782503600130 & 9782503600147 (e-print), 196 pp.

This volume is a Festschrift or, as stated in the title, a *Gedenkschrift* to celebrate the Scottish place-name scholar Dr Doreen Waugh (1944–2015), an important scholar who explored the Scottish past, especially Shetland and Orkney, often from a toponymic perspective. Waugh was raised in Shetland, and later studied English at the University of Edinburgh. After graduating, she worked as a high school teacher, with an interlude as an English language teacher in Borås, Sweden. It is said that her husband once gave her a copy of Bill Nicolaisen's "Place-names of Scotland," which was a life-changing read for her; for the rest of her life, place-names became for her, in her own words, "an endless source of fun, inspiration, enthusiasm and intellectual excitement." She took evening classes with Ian Fraser and later did a PhD with him on names in Caithness, graduating in 1985, after which she went on to become a tour-de-force in Scottish place-name studies for the rest of her life.

This collection of essays does not only deal with place-names but also runes, language, and important aspects of early Scottish history. In the introduction, the editors first provide a presentation of Doreen Waugh, her background, and her research, followed by an overview of the essays in the volume. In the following article, Val Turner describes the various research projects Doreen Waugh was engaged in.

Jacob King explores the interaction between Norse and Gaelic in Caithness by analysing the place-names. Going back to an idea by Doreen Waugh that the Norse settlers in Caithness established themselves on the best land, while later Gaelic settlers (or those who had been displaced by the Scandinavians) were pushed to more peripheral and less fertile land, King focuses on the Gaelic element *achadh* 'farm' and the distribution of such place-names, and can confirm Waugh's hypothesis.

In a long and important article, Ryan Foster discusses the interesting place-name elements *sætr* and *ærgi* in Shetland and the Faroe Islands. As known, *sætr* in Norway is a common word for a summer shieling, and Christian Matras showed in an

elucidative article in *Namn och bygd* (1956) that *ærgi* in the Faroes actually denotes some kind of shieling-type settlement. This latter *ærgi* is obviously a loan from either the Scottish Gaelic *àirigh* or Irish *áirge*, both with meanings such as 'summer grazing.' The complementary distribution pattern of the two elements presented by Foster shows that some 150 *sætr*-names are found in Shetland, but only four *ærgi*-names, whereas in the Faroes there are 21 *ærgi*-names but only a handful of uncertain *sætr*-names, and he argues convincingly that the explanation for this goes back to the origin of the settlers. The settlers of Shetland came from Norway while the Faroes saw a migration of people from the Hebrides and Ireland. The latter came from a Norse milieu that had encountered the Gaelic language and culture and adopted the term *ærgi*. This result can, according to Foster, be corroborated by new DNA results from the North Atlantic region. While the heritage DNA of Shetland shows an almost equal proportion of male and female lineage from Scandinavia, that of the Faroese population suggests that 87 per cent of the male Y-chromosomes and only 17 per cent of the female mtDNA are of Scandinavian origin, probably because Scandinavian men had been to Ireland and brought home wives (or slave women) of Celtic origin.

In her essay, Judith Jesch analyses the seven runic inscriptions found in Shetland, five of which come from just two sites. Five of the inscriptions are considered to be Viking Age and two medieval, and all are on stone. This differs from, for example, Orkney, and, according to Jesch, this does not represent a continuous local tradition of runic writing, but occasional impact, probably from Norway. The inscriptions contain two men's names, *Þorbjǫrn* and *Grímr*, snippets of runic texts, *þenna stein, [e]ptir fǫður sinn Þorbjǫ*[*rn*], and some (fragments of) words. In her summing up, Jesch concludes that "[r]unic writing never really took off in a big way in Shetland," and I am inclined to agree with her.

Michael Jones addresses a very much discussed legal Scottish phenomenon, the Udal law, analysed, for example, by Dr David Sellar (The Lord Lyon King of Arms 2008–2014) in a research project on landscape, law and justice led by Professor Michael Jones in Oslo. This article, however, does not have a legal perspective *per se*, but explores how the concept has been used in fiction by Sir Walter Scott and later authors as an evocation, a marker of Orkney and Shetland identity.

Eileen Brooke-Freeman introduces us to a remarkable Shetlander, a school-teacher and amateur scholar by the name of Andrew Dishington Mathewson, who left behind a collection of maps, records of place-names and other documents, which today are kept in an archive. Drawing on this material, Brooke-Freeman paints a fascinating picture of rural life in Shetland in the 1800s. The essay is not only a testimony of Mathewson's studies of the landscape, it also provides an insight into his and his family's social life and struggle, hardship and debt.

Barbara Crawford discusses the *hirð* in Orkney, which seems to have developed from a retinue of warriors into a council for leaders, where these *hirðmenn* continued as agents of the crown in the tributary territories long after they had disappeared in Norway. At the centre of Crawford's discussion is an important Orkney document from as early as 1438–1439 dealing with this subject, and which also provides important evidence of the Scots language in Orkney. These *hirðmenn* and the *lendirmenn* were thus not there just to protect the king, but also to participate in the administration of Norway and its *skattland*s.

Steffen Stummann Hansen brings up a long-lost Faroese tradition of extracting dye from the plant common tormentil as a replacement for tree bark to tan leather, wool, fishing nets etc. Stummann Hansen presents the plausible assumption that this tradition came to the Faroes from Shetland during the early colonisation of the islands.

Willie Waugh analyses the place-name *Cleikhimin*, which is found in several places in Scotland and Northern England, most famously in the name of the broch in Lerwick. Waugh eliminates the possibility of these names having a Celtic or Scandinavian origin, and instead argues convincingly for a Scottish-English etymology based on a verb *cleek* 'to seize,' a word used in the naming of settlements in the period c. 1690–1850 when the vast bulk of common land was taken into private ownership.

To conclude, this book is a welcome and useful volume commemorating Doreen Waugh and her life-long research on place-names and the history of Shetland and Orkney.

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Reinhard Hennig, Emily Lethbridge & Michael Schulte (eds.), *Ecocriticism and Old Norse Studies* (The North Atlantic World 7), Turnhout: Brepols 2023, ISBN 9782503604848, 312 pp.

This book is envisioned as a first collective step in bringing the worlds of ecocriticism—and environmental studies more generally—and the broad sweep of Old Norse literary studies together. The editors have assembled a wonderfully wide-ranging collection of chapters to answer a clear purpose, articulated in the book's introduction. *Ecocriticism and Old Norse Studies*, they note, is a specialist volume intended to do the necessary foundational work of collecting solid Old Norse scholarship on environmental topics in one place, set it in context and dialogue with a variety of ecocritical approaches, and draw attention to an array of sources and methods. Done well, they argue, this base can be used to chart future directions, where an "Old Norse ecocriticism" (p. 29) might be able to contribute to environmental research, which is increasingly interdisciplinary. And the work is very well done indeed.

While the authors, editors, and others, have made excellent individual contributions in ecocritical directions in recent years, this stands as the first book-length work to try and build substantial dialogue on the possibilities and challenges to these theoretical approaches. Such a work is, the editors note, essential due to the many assumptions that float through broader ecocritical work about the intellectual, creative, spiritual, and lived worlds of the medieval period. *Ecocriticism and Old Norse Studies* squarely confronts many of those assumptions, and ecocritics from other areas will find the book's framework, index, and breadth of coverage helpful; though, some of the chapters might not be as accessible to readers without some training in Old Norse philology.

The volume's introduction not only provides a helpful structure to the collection, but highlights key trends in the history and present of ecocriticism, comments on the place of medieval literature in this theoretical wave, and signposts the plurality of ecocriticisms that the authors engage with in their respective chapters. Those chapters regularly engage with the same key works (e.g. Lynn White Jr.'s "The historical roots of our ecologic crisis," 1967 and Christopher Abram's *Evergreen Ash*, 2019), but build out in many directions. This gives the volume a sense of intention and conceptual polish that is sometimes difficult to wrangle in edited collections. Readers are treated to chapters that extend out of this centre in different directions as they explore ecocritical ideas in the analysis of religious texts, skaldic and eddic poetry, medieval laws, and a range of saga genres, including the sagas of Icelanders, kings' sagas, and chivalric sagas. The authors also cover a wide chronological range, including chapters exploring the thought-worlds of a semi-remembered Viking-Age (e.g. Jonas Koesling and Reinhard Hennig), the appropriation of Old Norse texts in racist and colonial exercises in nineteenth- and twentieth-century Africa (Juliane Egerer), but most of the chapters address the ontologies, epistemologies, and material realities of medieval Scandinavia and Iceland.

The value of the collection is greater than the sum of its parts. Chapters like Elizabeth Walgenbach's, Tiffany Nicole White's, Sabine Heidi Walther's, and Stefka G. Eriksen's all explore different texts and concepts, but taken together, they clearly demonstrate that White Jr.'s ideas about a dogmatic, homogenous, hierarchical medieval church bearing the brunt of responsibility for the ecological crises of the Anthropocene, simply doesn't chime with the overwhelming evidence for a rich variety of pragmatic, adaptable, and diverse medieval Christian thought. Others, like Hannah Burrows's, Timothy Bourns's, Jonas Koesling's, and Philip Lavender's, together challenge and expand the possible opportunities and approaches to ecocritical readings of the creative endeavours of medieval authors. Each chapter makes its own contributions in its own direction and calls for others to follow, but together they answer the editors' stated purpose to assemble strong, focused work in the discipline in the hopes of contributing to wider ecocritical and environmental scholarship.

The result is a sense of possibility, and specialists and advanced students alike will turn, and return, to *Ecocriticism and Old Norse Studies* as a valuable collection in the work of continuing to develop a range of Old Norse ecocriticisms. While this is an emerging area of interest in Old Norse Studies, this book will no doubt play a central role in that emergence.

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Adrian Howkins & Peder Roberts (eds.), *The Cambridge History of the Polar Regions*, Cambridge: Cambridge University Press 2023, ISBN 9781108429931, xvii + 829 pp.

The Cambridge History of the Polar Regions is a remarkable achievement. This massive volume pulls together much of the past quarter century's vast upswing in historical research related to the Arctic and Antarctic stimulated by growing environmental and political interest in these regions. More than that, this volume provides a reminder that older traditional forms of polar history must be, and can be, transcended. The thirty-one chapters offer a valuable resource towards that goal. As editors Adrian Howkins and Peder Roberts discuss in their thoughtful introduction, "polar history" itself is a problematic and far from stable concept. They de-construct many of the common terms and ideas associated with polar history, including the challenge of defining the polar regions. They conclude, along with Canadian geographer Louis-Edmond Hamelin (originator of the term *nordicity*), that it is humans that make the polar. Picking up on an observation by Michael Bravo that the expressions polar history and polar regions

> emerged from the desire of individual practitioners to stabilize and legitimize traditions, to give them life and meaning […] Those who practiced and endorsed *polar exploration*, *polar geography*, and *polar science* created *polar history* as the label of their achievements.

The editors walk the reader through a variety of key problems regarding how to define and problematize the polar regions. Bringing a 2020s sensibility to the task of contextualizing and historicizing the past century's trends in writing about activities in the Arctic and Antarctic, they deftly provide eye-opening meta-perspectives with which to conceive problems and methodological tools for further invigoration of histories of the polar regions. Their analyses lead the editors to conclude with an irony:

> the best way to do polar history is to *not* do polar history, and instead rely on the individually crafted parts adding up to a whole that, if not coherent, is at least illuminating.

The thirty-one-page introduction should be required reading in any humanities or social science course or research seminar related to the polar regions. The thirty chapters that follow provide strong evidence to the validity of their conclusion.

Historical writing on the polar regions has long been dominated by non-academic writers who emphasized exploration, conquest, and fodder for chauvinism. Even when academic historians brought scholarly skills and instincts to the task, these efforts largely remained siloed within national perspectives. So even as historiographic sophistication and the range of topics increased, the degree to which robust international and circumpolar perspectives and use of multi-disciplinary resources remained comparatively small. Having been part of an interdisciplinary initiative in the mid-1990s to study comparatively the histories of Nordic polar research, I was astounded to learn that many specialists and enthusiasts in each country possessed

meager knowledge of neighboring nations' respective polar past. Much has changed over the past three decades. The thirty-one chapters provide a wide range of topics and perspectives—largely political, environmental, and post-colonial. These entail analyses focused on national perspectives, such as efforts to create a Soviet Arctic, and on broader trans- and internationally oriented studies such as representations of the polar regions in historical fiction; and the connections between mining and colonialism in the circumpolar north. Many of these studies draw upon resources from several humanistic and social science disciplines, and use a wide range of source materials from archival documents to archaeology and oral history. Indigenous experiences and perspectives receive admirable attention. In this respect the volume will surely prove critical for efforts to rethink and re-conceptualize the historical study of the polar regions. It will contribute to elevating the academic status of historical scholarship on the polar regions.

The lack of a unifying theme, or even thematic clustering into sub-groups, might disturb some readers. Given the wealth of topics and methodological perspectives represented by the chapters, the volume provides a unique resource to allow scholars to broaden their horizons. It is not designed to provide a good read from cover to cover; the physical weight alone of the over 830-page hard-cover book should dissuade leisurely reading in a comfy chair, bed, or hammock.

As impressive as this volume may be, it remains slanted towards English-language scholarship. Although science is invoked and discussed in many chapters, the historically significant role of science in polar activities deserves more extensive analyses than is provided. Of course, to be fair, such a volume is dependent on those scholars willing to contribute. One of the editors endeavored repeatedly to recruit this reviewer and other historians of polar research in Scandinavian countries, only to hear that other commitments precluded participation.

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Jorunn Joiner, *Remembering Classical Scandinavia in Britain, 1760–1830*, Lund: Lund University 2024, ISBN 9789189874480, 232 pp.

The fascination with the past is not a new phenomenon, and the past often serves as a canvas onto which our own ideas, values, and ideals are projected, sometimes more clearly than as a realistic representation of past histories and stories. This fascination for the past and projection of ideas is given space in Jorunn Joiner's doctoral thesis *Remembering Classical Scandinavia in Britain, 1760–1830*, which she defended at Lund University in September 2024.

Joiner's study examines how British cultural texts from the period between 1760 and 1830 move beyond a general interest in Scandinavian history and motifs, and start to construe what she terms "classical Scandinavia" as a form of cultural memory. The thesis draws on Aleida and Jan Assmann's works on cultural memory, in particu-

lar Aleida Assmann's understanding of living memory and cultural memory, thereby situating Joiner's analysis in the broader field of research on how societies remember and reimagine the past.

A terminological contribution lies in Joiner's use of the term "classical Scandinavia" instead of the more commonly used terms "Norse" or "Gothic." This terminological choice allows her to highlight the parallels between impact and influence of classical antiquity and Scandinavian motifs and history on British Romantic literature. While this terminology highlights the comparable modes of engagement found in the literature of the studied period, it does not necessarily account for the more prevalent use of the grotesque and the dark in texts engaging with Scandinavia.

Joiner's chosen period, 1760–1830, bridges the transition from Neoclassicism to Romanticism and early Victorian period, thereby closing the gap between literary periods. Her corpus of cultural texts is not bound to generic boundaries and includes a variety of different texts concerned with classical Scandinavia, though no novels are studied. The thematic approach used provides insights into what kind of different shapes specific ideas may have taken but suffers the disadvantage that a chronological progression of these ideas, for example through intertextual analyses, is to be set aside, as Joiner herself also points out.

In the texts featured in this study, Joiner argues, classical Scandinavia is portrayed as an undiscovered past, or a nearly forgotten past. This framing, she suggests, actualises the question of remembrance and the use of classical Scandinavia in the construction of cultural memory and British ethno-cultural identity. In this context, Joiner identifies necromancy as a metaphor for reviving the past as a key motif that highlights Romantic antiquarianism's urge to preserve the memory of the past. This conceptual metaphor structures the thesis and connects its four thematic vignettes, which are given space in a chapter each: *Odin*, S*tone Circles*, material remains, which she, maybe a bit tongue-in-cheek calls *Things,* and *The Scald*.

In the metaphorical burial practice Joiner constructs, Odin functions as the dead hero, buried with his material belongings, his grave marked by a stone circle, and his life and death being commemorated by the scald, thus tying the seemingly disparate vignettes into a cohesive interpretative framework. Throughout the thesis, Thomas Percy's English translation of Paul Henri Mallet's *Introduction á l´histoire de Dannemark* (1755) and *Monumens de la mythologie et de la poesie des Celts* (1756) serves as a backdrop for the analysis due to it being the source of inspiration to several of the examined texts from between 1760 and 1830.

In the first thematic chapter, on Odin, Joiner presents analyses of texts belonging to different genres, with the oldest being Thomas Penrose's "The Carousel of Odin" (1775) and the youngest being William Drummond's "Odin" (1817), as well as Henry Fuseli's paintings of Odin. The analyses are contextualised by brief references to Odin in the *Poetic Edda*, though these could have been expanded on further to illustrate more clearly the differences in portrayal in the Old Norse sources and their British reimaginings. Joiner draws the conclusion that representations of Odin illustrate the migration of the character, tying these representations to ethno-cultural movements in Britain at the time.

In the following chapter, on Stone Circles, the focus lies on the depictions of standing stones in cultural texts, such as in William Wordsworth's "Salisbury Plain"

(1793–1794). Stone circles, Joiner argues, were portrayed as visible remnants of the past, offering a location onto which imaginations could be projected, while also frequently comparing British monuments with Scandinavian stone circles, tying Britain and Scandinavia closer together, thus offering tangible sites for ethno-cultural identity formation.

In the third chapter, devoted to objects and material remains, Joiner discusses both imaginary and real objects, such as the sound of shields or golden horns and their portrayal in British cultural texts. Joiner argues that objects function as conduits or windows into the past. She also touches upon the process of losing and finding objects as the process of unearthing memories and imagining past aesthetics. Joiner acknowledges, however, that her own analysis is missing the materiality of texts, and while the portrayal of textual remains may also be an interesting avenue to explore in the future, she uses this limitation to motivate her last theme, the figure of the scald.

The scald, as Joiner puts forward in the fourth and final thematic chapter of her thesis, serves a twofold function in the texts analysed in this thesis. He is, Joiner argues, both connected to nature, through his portrayal as a primitive poet, and a commemorator of the past and the dead heroes and therefore a mediator between the past and the present, nature and human. Importantly, Joiner points out, British authors may have perceived themselves as standing in the tradition of scalds, renegotiating and mediating what, and how the past is to be remembered.

The last chapter of the thesis is dedicated to a rather short conclusion, where Joiner reiterates the importance of classical Scandinavia for the identity construction in Britain between 1760 and 1830, and points out that classical Scandinavia not only encompassed what we today understand as early Scandinavian history but rather is to be understood as a construction and (re)imagination of the past, where the unknown was interpreted in relation to the known.

Joiner's thesis offers valuable insights into several of the ideas and themes that shaped British portrayals of early Scandinavian history and Norse mythology between 1760 and 1830. Her interpretative framework, based on the metaphor of burial practice is simple, original and effective, though I had wished for it to be more explicitly revisited in the conclusion to conceptually link all parts of the thesis. *Remembering Classical Scandinavia in Britain, 1760–1830* appears as an ambitious study, not least because of the number of texts examined, of cultural memory and (re)imagining of the past. Joiner also opens several avenues for future research that hopefully will be explored at some point in the future.

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Charlotta Svonni, *Utbildning för samer. Ambitioner och praktiker i nomad- och sameskolan från 1950-tal till 2010-tal* (Umeå Studies in History and Education 27; Skrifter från Várdduo–Centrum för samisk forskning 30), Umeå: Umeå University & Várdduo–Centre for Sámi Research 2023, ISBN 9789180701556, 150 pp.

Introduction. Historical Research and the Legacies of Sami Education

In recent years, the Nordic countries have launched national truth and reconciliation processes to address the historical injustices experienced by the Sami people and other minorities. These efforts have brought to light the deep and lasting impacts of assimilation policies, cultural erasure, and systemic discrimination across institutions—including education (Norlin & Lindmark 2021). In this context, historical research takes on renewed significance. It provides the empirical and analytical foundation necessary to understand how past policies and practices have shaped the experiences and identities of the Sami and other minority peoples, and it plays a vital role in grounding contemporary efforts toward justice and institutional accountability in historical knowledge.

Charlotta Svonni's doctoral dissertation, *Utbildning för samer. Ambitioner och praktiker i nomad- och sameskolan från 1950-tal till 2010-tal* ['Education for Sami. Ambitions and school practices in the nomad and Sami school from 1950s to 2010s'], is a timely and essential contribution to ongoing discussions concerning Indigenous education, historical responsibility, and institutional change. Through an in-depth examination of Sami education policy and practice over six transformative decades, the study not only documents institutional ambitions and reforms but also interrogates the ideological frameworks behind them. It demonstrates how historical trajectories in Sami schooling have affected the possibilities for cultural continuity, transmission, and the assertion of Sami identity.

Historical research such as Svonni's enables a deeper understanding of educational systems that have functioned as both sites of colonial assimilation and potential spaces for Indigenous renewal. Her work illustrates how educational reforms—though often framed as progressive or democratic—have frequently fallen short of supporting Sami self-determination. By revisiting and critically analyzing the shifting goals and practices of Sami education, the dissertation offers crucial insights into the long-term structural challenges that continue to shape Indigenous education today.

Svonni's research is not only of scholarly value but of societal relevance. It speaks directly to questions raised by Indigenous communities, policymakers, and historical inquiries into colonial educational practices, policymakers, and historical inquiries into colonial educational practices alike: What happened? How did it happen? And how can we ensure that education becomes a space of healing, justice, and empowerment rather than erasure?

This review will highlight the structure, methodology, and significance of Svonni's dissertation and its contributions to Sami educational history, Indigenous studies, and curriculum research.

About the thesis

Charlotta Svonni's doctoral dissertation, *Utbildning* för *samer: Ambitioner och praktiker i nomad- och sameskolan från 1950-tal till 2010-tal* (2023), offers a thorough

and insightful analysis of the development of Sami and nomadic schooling in Sweden from the 1950s to the 2010s. Her research provides an in-depth understanding of the educational visions, aims, and practices that have guided Sami education across several decades, including the methods and philosophies underpinning knowledge transmission in these unique school settings.

Svonni investigates how educational policies and societal worldviews have intersected with Sami lived realities, tracing how democratic reforms and political choices have influenced the structure and content of Sami schooling. By focusing on a period of profound societal change, she reveals how national education ambitions regarding the Sami population were articulated, operationalized, and experienced.

The dissertation is presented in the format of a compilation thesis, comprising four peer-reviewed articles. These studies collectively examine key dimensions of Sami education at various historical junctures, highlighting Svonni's substantial empirical contributions and analytical depth. The articles engage with core questions around identity, autonomy, curriculum content, and the role of traditional knowledge, making the work highly relevant to ongoing discussions in Indigenous education and Sami studies.

Positioned within the broader academic discourse on Indigenous and Sami education, Svonni's work calls attention to the urgent need for educational frameworks that are both culturally meaningful and linguistically appropriate. It reinforces the importance of policy development that genuinely integrates Indigenous perspectives, and contributes to broader efforts aimed at decolonizing educational institutions. Her research aligns with the strong tradition of school history studies at Umeå University and builds on its legacy of rigorous inquiry in this field.

By critically interrogating the institutional and ideological foundations of Sami education, Svonni's dissertation deepens our understanding of how state policies have shaped, and at times conflicted with, Indigenous educational aspirations. Her work not only maps the historical trajectory of Sami schooling in Sweden, but also points toward the structural changes needed to build a more just and equitable educational system for Sami learners today.

Theoretical and Methodological Approach

Rooted in the field of curriculum theory, Svonni's dissertation offers a critical and in-depth investigation of how the content and aims of Sami education have been shaped by shifting political and societal ideologies across time. Rather than presenting a straightforward historical account, her work explores the deeper structures behind educational policies—examining how ideologies are embedded in policy formation and how these influence practices within Sami schools.

Drawing on thematic and content analysis, Svonni systematically examines a wide array of curricula, policy documents, and educational frameworks. Through this rigorous approach, she identifies both the overt and subtle goals embedded within these materials, tracing how visions for Sami education have evolved in tandem with developments in politics, Indigenous rights discourses, and educational reform movements in Sweden.

Her analysis reveals how efforts to preserve and promote Sami language and culture have often had to coexist with the national education system's expectations for

standardization, integration, and uniformity. By unpacking these tensions, Svonni highlights the difficulty—and importance—of designing curricula that respect cultural distinctiveness while also meeting national requirements.

Svonni's methodical reading of policy texts enables her to chart the journey from educational ideals to classroom implementation. She pays particular attention to how different historical moments have influenced perceptions of Sami identity, bilingualism, and Indigenous knowledge in the school setting. Her findings emphasize the significant role of curriculum design as both a policy instrument and a site of negotiation for cultural continuity.

By connecting abstract policy goals to the concrete experiences of Sami students and teachers, Svonni offers a nuanced portrait of how educational systems function in practice. Her research exposes the complex and at times contradictory forces that shape Indigenous education—illustrating the ongoing need for educational models that are responsive to the specific linguistic, cultural, and historical realities of Sami communities.

Contributions to the History of Sami Education

Svonni's doctoral work presents an important and original analysis of the changing landscape of Sami education policy and practice from the early 1950s onward. Her detailed study reveals how efforts to safeguard Sami language and culture have been integrated—though not without tension—into the Swedish educational structures designed for nomadic and Sami communities. Through a careful tracing of policy development, Svonni shows how Sami education has been shaped by broader national education reforms, all while attempting to protect Indigenous cultural distinctiveness.

A central strength of the dissertation lies in its close examination of how Sami schools have evolved over time. These schools, which initially aimed to prepare children for life within reindeer herding communities, have since undergone a significant shift. Over the decades, they have moved from narrowly defined cultural instruction toward a broader, more inclusive model that serves the wider Sami population. The increasing prioritization of Sami language instruction marks a notable change in both policy and pedagogy—reflecting wider educational trends toward integration and inclusivity within national schooling systems.

Svonni's research also offers valuable insights into the ideological currents that have influenced Sami education since the mid-twentieth century. As Sweden set out to pursue a more standardized and centralized education system at the beginning of in the 1950s, policymakers attempted to accommodate linguistic and cultural minorities within this larger framework. Svonni critically assesses how these attempts have materialized, shedding light on both the achievements and limitations of implementing an education system that acknowledges cultural difference while striving for national cohesion.

By placing these developments in their historical and political contexts, Svonni contributes to a deeper understanding of how Indigenous education is negotiated within state systems. Her findings emphasize the challenges involved in creating school environments that simultaneously support Sami cultural revitalization and meet the requirements of a national curriculum. The gradual transformation of Sami schools—from culturally specific, localized institutions to more integrated education-

al spaces—reflects shifting perspectives on Indigenous rights, diversity, and inclusion in Sweden.

Ultimately, Svonni's dissertation makes a major contribution to scholarship on Sami educational history. It offers a critical and nuanced account of how Sami schooling has adapted to changing political priorities, helping us better understand the role of education in shaping Indigenous futures within modern nation-states.

Assessment of Methodology

Svonni's study, situated within the field of curriculum studies, offers a careful and in-depth analysis of the aims and knowledge foundations that shaped Sami education over the decades under review. Her investigation is informed by Gert Biesta's (2020) conceptual model of education, which distinguishes between three key functions: qualification, socialization, and subjectification. This framework serves as a lens through which Svonni interprets the educational goals embedded in Sami curricula.

In addition to exploring curricular aims, the dissertation also examines how collective Sami identity is constructed and represented within educational texts. To accomplish this, Svonni draws on identification theory and the concept of imagined communities, particularly as theorized by Benedict Anderson (2006) and Thomas Hylland Eriksen (2007). These theoretical tools enable her to analyze how Sami identity has been envisioned and articulated within schooling materials across time.

Methodologically, Svonni applies both thematic and content analysis to a wide selection of curriculum documents and policy texts. This dual approach allows her to uncover underlying values, ideological shifts, and the practical strategies used to shape Sami schooling. Through this analytical lens, she provides a detailed and insightful account of how Sami education has evolved in both form and content, revealing how educational strategies were influenced by broader sociopolitical forces.

Scholarly Importance

Svonni's doctoral dissertation represents a crucial academic contribution with significant implications for the fields of educational history, Indigenous studies, and curriculum theory. Her thorough investigation of Sami education from the 1950s to the 2010s goes beyond a simple historical account, providing deep insights into the shifts in educational practices and policies within the context of Sami communities in Sweden. Beyond merely adding to historical understanding, the dissertation critically examines the interaction between educational systems and Indigenous communities, offering valuable perspectives on the broader issues of cultural preservation, language rights, and the role of education in fostering community identity and resilience.

By combining curriculum studies with Sami and Indigenous studies, Svonni's research enhances our comprehension of the complex relationship between education and the survival of Indigenous cultures. Her work emphasizes the importance of educational content and goals in transmitting and adapting cultural knowledge, offering a nuanced view of the challenges and opportunities of delivering education that is culturally relevant to minority communities. This interdisciplinary approach provides a more comprehensive perspective on the difficulties involved in developing and implementing educational policies that honor the rights and traditions of Indigenous peoples.

Additionally, Svonni's dissertation thoughtfully engages with the societal and political forces that have influenced Sami education over the years. By examining Sami schooling within these larger contexts, her research explores the intersections between educational policy, national identity politics, and Indigenous rights movements. This contextual approach is essential for understanding the specific challenges faced by Sami communities and for making comparisons with the experiences of other Indigenous groups worldwide.

The academic significance of Svonni's work is also evident in its potential to guide future research and influence policy in the realm of Indigenous education. Her findings highlight the need for incorporating Indigenous perspectives and voices in the creation and execution of educational curricula and policies.

Concluding Reflections

Charlotta Svonni's dissertation offers an important and timely contribution to our understanding of Sami education, especially in the context of ongoing Nordic discussions concerning Indigenous rights, historical injustices, and educational reform. At a moment when governments and institutions are being called to acknowledge and address the historical injustices experienced by Indigenous peoples, this research provides a crucial foundation for reckoning with the past and envisioning more just educational futures.

Spanning over sixty years of policy development, curricular shifts, and ideological transformations, Svonni's work provides a detailed and critical account of how Sami schooling in Sweden has been shaped by both national objectives and Indigenous aspirations. Her study does not simply document change—it interrogates the forces behind it, revealing how education has functioned as a tool for assimilation and as a space for cultural resilience and self-determination.

By placing Sami educational history in dialogue with theories of curriculum, identity, and power, Svonni enables a deeper understanding of the structures and discourses that continue to affect Indigenous education today. Her methodologically rigorous approach—drawing on thematic and content analysis alongside theoretical insights from curriculum studies and the study of imagined communities—makes this dissertation a model for research that is both empirically grounded and conceptually rich.

Importantly, the study's relevance extends beyond the academy. In the context of ongoing efforts to address colonial educational legacies, Svonni's research underscores the value of historically informed inquiry in addressing the legacies of colonial education systems. It demonstrates how careful, critical research can support processes of recognition, redress, and reform. Her findings call attention to the lasting impact of educational policy on Sami identity, language, and cultural continuity, and serve as a reminder of the responsibilities that states and institutions bear in healing historical wounds.

Svonni's dedication to uncovering the lived realities of Sami education—and the ways in which these have evolved across time—reflects a research ethic that honors both scholarly rigor and community relevance. Her work speaks not only to historical realities, but also to future possibilities: a future in which Sami education is defined not by external imposition, but by self-determination, cultural continuity, and linguistic revitalization.

In summary, this dissertation stands as a milestone in Sami educational research. It sets a strong precedent for future scholarship, while also offering policymakers and educators a valuable resource for designing more equitable and culturally sustaining educational systems. More broadly, it affirms the critical role of research in confronting uncomfortable truths, amplifying Indigenous perspectives, and shaping more inclusive futures.

References

Anderson, B. (2006). *Imagined Communities. Reflections on the Origin and Spread of Nationalism*, revised edition, London: Verso.

Biesta, G. (2020). "Risking ourselves in education. Qualification, socialization, and subjectification revisited," *Educational Theory*, 70:1, pp. 89–104.

Eriksen, T.H. (2007). *Etnicitet och nationalism* ['Ethnicity and nationalism'], Nora: Nya Doxa.

Norlin, B. & Lindmark, D. (2021). "Generating and popularising historical knowledge in a reconciliation process. The case of the Church of Sweden and the Sami," in *Historical Justice and History Education*, eds. M. Keynes, H. Åström Elmersjö, D. Lindmark & B. Norlin, London: Palgrave Macmillan, pp. 131–151.

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Torun Zachrisson & Magnus Källström (eds.), *Tyde den som kan. En upptäcktsfärd bland Upplands runstenar* (Upplandsmuseets skriftserie 13), Uppsala: Upplandsmuseet 2022, ISSN 1404-2908; ISBN 9789186145415, 288 pp.

In connection with the exhibition "Tyde den som kan" ['Interpret it, whoever can'] at the Uppland Museum, it was suggested that a publication should be issued on the many rune stones in the province, and the use of runes over time. A volume comprising thirteen contributions by many leading experts is now available.

Not surprisingly, the first contribution is by Henrik Williams, Professor of Runology at Uppsala University, who presents an overview of the use of the older runes in Uppland during the pre-Viking period. Carvings dating back to that period are remarkably few in the central Swedish provinces. No such carvings have been found in Västmanland, only two, or possibly three, in Södermanland, and four in Uppland, namely "Möjbrostenen," "Bolstomtastenen," "Krogstastenen" and "Rickebytärningen." Two doubtful items clearly do not belong here, namely "Dragbyskärvan" and "Danmarksbyfragmentet." In addition, Williams briefly and pedagogically deals with questions concerning the origin of the runes.

Magnus Källström provides an overview of the runestone tradition in Uppland. Approximately 1,300 runestones are known to exist in this province, most of which were erected during a hundred-year period in the transition between the Viking Age and the Middle Ages. He also treats of some famous runestone carvers in his content-rich contribution, such as Åsmund Kåresson—the innovator from the north—Fot, Visäte, Torgöt, Fotsarve and Öpir, the latter of whom was the subject of Marit Åhlén's doctoral thesis in 1997, and highlights the runestone tradition in western Uppland, which differs from that of the eastern and central parts of the province. A section in

Källström's contribution deals specifically with runestone ornamentation and dating.

Torun Zachrisson's contribution focuses on the runestones in Uppsala (Östra Aros), where there are 36 known stones. It can be noted that these runestones indicate that, for a long time, it was important to manifest the importance of the place, a complex environment having the character of a regional centre which dates from the first part of the eleventh century. This environment is discussed in an interesting way by Zachrisson in her contribution. At the same time, she emphasises that

> a lot of questions remain to be answered when it comes to the oldest settlement, the early church environment, and the topography of Östra Aros, but it is clear that the runestones are an important piece of the puzzle in that discussion. (p. 87)

One looks forward with anticipation to further studies on this topic.

Staffan Fridell writes about place-names on the Uppland runestones. Names denoting farms, villages and families are addressed, and names connected with journeys abroad by Viking warriors, pilgrims etc. are presented under the sub-heading "Home and Away." In passing, he also touches on the etymology of the word *viking*, concluding that the most likely origin of the word is the verb *vika* 'leave, go away' (cf. also Bernard Mees' contribution in *Arkiv för nordisk filologi* 127, 2012, pp. 5–12). In connection with this, Fridell writes: "Those who stayed at home were not Vikings, only those who went abroad. But the runestones were usually erected at home" (p. 99). The most interesting part of Fridell's solidly grounded overview is the discussion on names that remind of distant journeys, such as *Ækra* (perhaps *Eckerö* on Åland, but the name might also refer to *Ekerö* in Lake Mälaren), *Ænglanᴅ*, *GarðaR* ('Gårdarike,' present-day Ukraine and western Russia) and *IorsaliR* (Jerusalem).

Another contribution is a systematically structured article by Patrik Larsson dealing with personal names on runestones in Uppland. The sections on various types of hypocorisms and bynames, and on non-Nordic personal names are particularly interesting.

Anne-Sofie Gräslund's contribution treats of women commemorated on Uppland runestones. She has previously shown that women are mentioned on upwards of 40 per cent of these runestones, and she touches on several important issues in her contribution, such as women being the first to adopt Christianity, inheritance customs, and what being described as "good" in a runic inscription really means. She also highlights a few female rune carvers, namely Gunnborga den goda (Hälsingland) and Åsgärd (Medelpad).

A fascinating contribution authored by Sofia Pereswetoff-Morath deals with the Viking Age and Early Medieval rune amulets (runic plates) found in Uppland, which comprise 23 of a total of 69 known such inscriptions in the Nordic region. There are runic amulets that convey a linguistic content, but also some that are "silent," i.e. containing runes as magical symbols. It is not always easy to distinguish these types. Thus, the runic sign **ᚦ** "can be understood as a symbol of the transmission of magical power. However, the power was perhaps not in the sign itself but in its name, namely *Þurs* 'giant, monster'" (p. 174).

A contribution that opens some exciting perspectives is Alessandro Palumbo's

article entitled "Medeltida runristade lösföremål från Uppsala län" ['Medieval runic-inscribed loose objects from Uppsala County']. Here, we meet runic inscriptions with a profane content, and the author goes on to touch on key questions concerning how people learned to carve and read runes in the Middle Ages. He also discusses issues of literacy and multilingualism. The last section of the article deals with carvings in Latin (in some cases rather pseudo-Latin)—Latin apparently had "a ritual and performative function regardless of whether or not the carver could spell correctly" (p. 192). This contribution leaves one wanting more.

In the volume, there is also a contribution on the runic calendar by Sven-Göran Hallonquist focused on the function of the runic staff among the Swedish farming population during the sixteenth and seventeenth centuries. Here, we find several instructive images of different runic calendars.

Based on previously unused source material (see pp. 240 f.), Marco Bianchi writes about Otto von Friesen, a giant of runology, and his importance for runic research, in particular on Uppland runic inscriptions. He also presents a few laypersons with an interest in ancient relics with whom von Friesen had contacts, such as Johan Hjalmar Söderlund, a beekeeper in Hummelsta, the school teacher Joel Hansson in Uppsala-Näs and Karl Alexis Karlinder, an upper secondary school lecturer in Altuna.

Laila Kitzler Åhfeldt writes in an engaging way about laser scanning of runic carvings and the importance of this technology. Not only has laser scanning proved to be a good way to make runic carvings available, it is also an extraordinarily useful tool for in-depth analysis of such carvings. Robin Lucas reports on the rune stone inventory in Uppsala County from 2017 onwards, and, concluding the volume, Ylva Lewenhaupt describes how the above-mentioned exhibition "Tyde den som kan" came about.

In conclusion, the volume Tyde den som kan is a welcome omnibus with updated contributions on the Upland runic inscriptions. In addition, it is a richly illustrated, aesthetically pleasing volume and the presentation is such that it is easy to assimilate the content even for those who do not have expert knowledge in the field of runology. This is an added plus, as there is a great deal of interest in runic carvings among the general public.

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