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**NAVAL
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MONTEREY, CALIFORNIA

THESIS

IRREGULAR WARFARE IN THE HIGH NORTH

by

Antti J. Heinola

December 2022

Thesis Advisor:
Second Reader:

Gordon H. McCormick
John J. Arquilla

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REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2022	3. REPORT TYPE AND DATES COVERED Master's thesis	
4. TITLE AND SUBTITLE IRREGULAR WARFARE IN THE HIGH NORTH			5. FUNDING NUMBERS	
6. AUTHOR(S) Antti J. Heinola				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) The strategic importance of the High North—defined in this thesis as the Arctic areas of Finland, Norway, and Sweden—is increasing. Previous research on the region focuses on assessing the often-competing interests of different nations in the High North. From a military perspective, with an emphasis on irregular warfare, this study considers how an irregular warfare approach to defending against a Russian offensive in the High North might unfold. Using data collected from various sources, the study adopts a heuristic methodology. Sources credibility has been verified by thorough searches for conflicting information and differing points of view. The analysis is conducted using historical, environmental, and doctrinal data. Based on the analysis, the thesis addresses the question: What is the most effective way to deter, or if deterrence fails, to counter a Russian offensive using irregular warfare supported by conventional capabilities in the High North? As Russian offensive doctrine is best defeated by irregular approach under some circumstances, an irregular defense and counterattack can provide an effective response if Russia chooses an irregular approach. The study finds that irregular warfare conducted by small, maneuverable units provides an effective solution to the challenge of campaigning against an aggressor in the High North. The thesis recommends developing requirements for logistics, manpower, and command and control for irregular warfare in the High North.				
14. SUBJECT TERMS High North, Arctic, irregular warfare, special forces, Russia, Finland, Norway, Sweden			15. NUMBER OF PAGES 79	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

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IRREGULAR WARFARE IN THE HIGH NORTH

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Submitted in partial fulfillment of the
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**MASTER OF SCIENCE IN DEFENSE ANALYSIS
(IRREGULAR WARFARE)**

from the

**NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

The strategic importance of the High North—defined in this thesis as the Arctic areas of Finland, Norway, and Sweden—is increasing. Previous research on the region focuses on assessing the often-competing interests of different nations in the High North. From a military perspective, with an emphasis on irregular warfare, this study considers how an irregular warfare approach to defending against a Russian offensive in the High North might unfold.

Using data collected from various sources, the study adopts a heuristic methodology. Sources credibility has been verified by thorough searches for conflicting information and differing points of view. The analysis is conducted using historical, environmental, and doctrinal data.

Based on the analysis, the thesis addresses the question: What is the most effective way to deter, or if deterrence fails, to counter a Russian offensive using irregular warfare supported by conventional capabilities in the High North? As Russian offensive doctrine is best defeated by irregular approach under some circumstances, an irregular defense and counterattack can provide an effective response if Russia chooses an irregular approach. The study finds that irregular warfare conducted by small, maneuverable units provides an effective solution to the challenge of campaigning against an aggressor in the High North.

The thesis recommends developing requirements for logistics, manpower, and command and control for irregular warfare in the High North.

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EXECUTIVE SUMMARY

Changing climate increases the strategic importance of the High North, for Russia and other nations as well. The growing Arctic capabilities of the Russian Federation are a clear indication the High North is an important area. The Nordic countries and their allies must be prepared for a Russian offensive in order to protect their capabilities and interests. The change in the security environment increases the importance of the ports on the Kola Peninsula for Russia.

High North is defined in this thesis as the Arctic areas of Finland, Norway, Sweden, and Russia. The research method used is heuristic. The thesis fills an information gap on the issue: How we can best deter or counter a Russian offensive by means of irregular warfare supported by conventional capabilities in the High North. The thesis explores this topic three ways: by analyzing Russian offensive doctrine; by examining the environment in the High North; and by outlining an irregular warfare approach to the High North to deter or counter a Russian offensive.

Irregular warfare provides a very efficient approach to counter a Russian offensive. Small units can maneuver undetected in the High North and have great effects on the attacking force with swarm attacks and hit-and-run raiding. The environment in the High North is optimal for irregular warfare. A pure conventional approach might stop the advance of the offensive but would not likely shape the battlefield for a successful counterattack.

Russian offensive doctrine calls for an irregular approach. Static defenses can stop the advance but are very vulnerable to the use of massed fires. Open flanks and long lines of supply form favorable conditions for small unit attacks. Use of smart munitions against high-payoff military targets will force Russia to secure its rear and further decrease its ability to secure its flanks.

Irregular warfare is effective also in the case of Russia choosing an irregular approach. Conventional force is as vulnerable for the attacker or defender if the other is using irregular warfare. Thus, rigid conventional defense formations are not an optimal

solution. Small units can be used to counter Russian irregular warfare units more effectively than large conventional formations of troops.

Smaller units for irregular warfare need less logistical support. Their operations can be sustained either by pushing resupply forward or having resupply points where they can go to resupply themselves. Successful operating conditions could be made possible by not having static troops or constant resupply traffic. The decreased amount of resupply traffic also decreases the risk of Russian irregular forces disrupting the logistics of the defenders.

The research has affirmed the utility and value of irregular warfare in the High North and recommends an irregular approach supported by conventional forces. However, considerations of common operational awareness will need to be addressed to successfully conduct irregular warfare operations. Future research should develop requirements for logistics, manpower, and training to best support and sustain irregular warfare in the High North. This approach to the High North may also prove applicable to other geographical areas that should be explored in further research.

ACKNOWLEDGMENTS

I want to express my gratitude to my advisor and second reader. It has truly been a privilege to work with you. Professor Gordon McCormick, thank you for guiding me from the beginning of the process to the end. Your input in our discussions kept me on track and the objective clear. The broad perspective and yet detailed guidance have been invaluable.

Doctor John Arquilla, thank you for pushing me to dig deeper in finding more evidence and for your very supportive guidance. Our discussions motivated me to go back and analyze in detail what evidence I have, what conclusions I can draw based on the evidence, and to go back and analyze more. The help of identifying sources has helped me greatly.

I want to thank the Graduate Writing Center for great help in the editing of the thesis. Betsy Wallace, thank you for patiently correcting and enhancing the structure of my writing. Lauren Callihan, thank you for taking the time to help me with the list of references. Dudley Knox Library has provided me the material I needed and guidance on where to find it. The assistance is greatly appreciated. Thank you Christina Socci and Margaret Beresik for editing my thesis.

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I. INTRODUCTION

A. BACKGROUND

Since the beginning of the thesis process, Russia has begun an offensive in Ukraine. The “neutral” countries of the European Union, Finland and Sweden, have applied to become member states of North Atlantic Treaty Organization (NATO). The geopolitical environment in Europe is in the midst of a change. The security concerns of many countries are materializing. The Russian offensive of 2014 that annexed Crimea can now be seen as a preparation for further objectives.

During the past 20 years, Western militaries have mostly been conducting missions in an environment where the opponent has been capable of fighting in only one domain. The Global War on Terror has also been conducted mostly in semi-permissive areas after the initial offensives, and the climates in the areas have been warmer. As the focus is shifting towards perceiving Russia and China as threats, the operational theatre changes in other sovereign states’ territories, from permissive or semi-permissive to hostile. Also, the capabilities of the peer, near-peer, and superior states force a mental change from guaranteed air superiority to potentially no air superiority at all, or temporarily achieved superiority at one time or in one place. In the High North, the Russia-Finland setting is an example of an offset in comparison of power. As the Northern Sea Routes begin to be open for longer periods of time, due to climate change, the competition for who is in control over them is going to increase. The Northern Sea Route is completely in the Arctic environment, which means there is a different set of obstacles to overcome.

Changing the operational environment in terms of climate and geography presents new challenges to Western militaries. The friction of war might be multiplied by the amount of snow, cold, or lack of infrastructure. The environmental change is notable, but the change in terms of operating against sophisticated military units with capabilities in multiple domains is a different challenge. Conducting operations in these conditions can potentially change the planning processes used, but most certainly change the mode of warfare. The Russian offensive against Ukraine forms an example of the change in the

threat. For the planners and leaders there must be an understanding of how environmental factors affect conducting irregular warfare in the High North. Maneuverability also requires different kinds of skills when a soldier is most likely to dismount from vehicles when getting to and from the objective. Individual and team level skillsets needed to survive, let alone to successfully conduct missions, become vital.

The importance of the High North for Russia makes the area important for the Nordic countries and NATO. The High North is critically important to Russia. It covets access to the natural resources of the area as the seas remain open longer. Along with that, a significant part of Russia's critical naval nuclear triad capabilities are positioned on the Kola Peninsula. The capabilities Russia possesses in the area are clear indicators of its importance. There is a necessity to concentrate their forces and plan accordingly to deter Russia.

Irregular warfare is defined in multiple ways. John Arquilla has noted the multiple definitions of irregular warfare.¹ He states irregular warfare can appear in three forms, which are insurgency, terror, and special operations. Arquilla describes the fundamentals for irregular warfare as the utilization of small units by creative means to counter larger, conventional forces. In this thesis, irregular warfare is warfare conducted by small units.

B. DEFINING THE HIGH NORTH

The High North is comprised of areas mainly north of the Arctic Circle, but also south of it where the climate conditions are similar. The Arctic has multiple different definitions, as shown in Figure 1. It can be defined by permafrost areas, the tree line, isotherm areas or by the Arctic Circle. IGI Global defines the High North as “territories of Nordic countries (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States) located throughout the Arctic beyond the Polar Circle.”² This thesis refers to the High North in the Nordic countries and Russia within the Arctic Circle. It is useful

¹ John Arquilla, *Insurgents, Raiders, and Bandits: How Masters of Irregular Warfare Have Shaped Our World* (Lanham, MD: National Book Network, 2011), 3–9.

² IGI Global, “What Is High North?,” accessed October 20, 2022, <https://www.igi-global.com/dictionary/high-north/68500>.

to consider some areas south of the Arctic Circle as the High North, due to their similar environmental conditions and infrastructure.

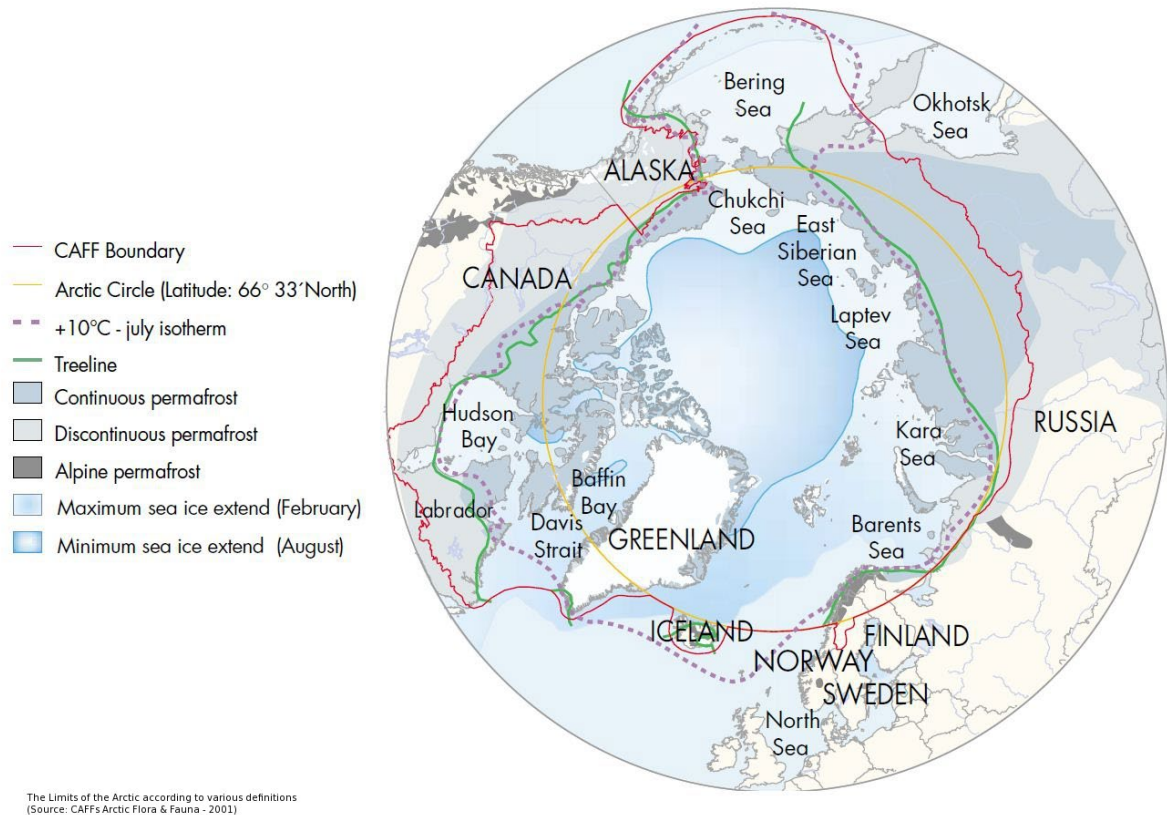


Figure 1. Different boundaries in the Arctic region.³

C. PURPOSE AND SCOPE

The purpose of this thesis is to examine the role of irregular warfare and the mission of special forces in the High North. The scope of the research is focused on the Nordic Countries sharing a border or a nearly direct land connection to Russia. The Nordic Countries include Finland, Norway, Sweden, Denmark, and Iceland. The scope of the

³ Source: Conservation of Arctic Flora and Fauna Working Group Arctic Council, "CAFF Map No.46 - The Limits of the Arctic According to Various Definitions," Image (CAFF International Secretariat, 2001), <http://library.arcticportal.org/1378/>.

thesis will exclude Denmark and Iceland to serve the purpose of analyzing the response to a direct land offensive threat posed by Russia.

D. RESEARCH QUESTION

This thesis will serve to answer the central question: “How can we best deter or counter a Russian offensive by the means of irregular warfare supported by conventional capabilities in the High North?” To answer this question, the following additional questions are:

- What is Russian offensive doctrine?
- What is the physical environment in the High North?
- What are the implications of the environment on military operations?
- What are the likely Russian operational approaches in the High North?

By answering these questions, the thesis will depict the threat and suggest a response for the Nordic countries to the threat. This will lead to conclusions and recommendations for the use of special forces in the High North. The conclusions and recommendations could serve as a guide to deployment of force and training objectives for the High North.

E. PREVIOUS RESEARCH

The studies conducted concentrate mostly on the strategic aspects of different nations. Among these, there are many studies on irregular warfare, but little examination of operations in the High North. While the Arctic as an environment and how it affects people are well studied, the effects on warfighting functions seem to have been studied minimally, if at all. The scenario framework of the research has not been studied since the war between Russia and Ukraine just began in February 2022.

Lester W. Grau and Charles K. Bartels have studied the Russian way of war and describe in detail the tactical aspects of Russian offensive doctrine.⁴ The offensive doctrine is compared to the older Soviet doctrines. Steven Canby studied the Soviet warfighting concepts, describing Soviet tactics as blitzkrieg.⁵ P.H. Vigor analyzes Soviet offensive doctrine with respect to how a deep and fast attack against NATO would have been conducted.⁶ These studies form the basis for Chapter II, in describing the Russian offensive doctrine.

Ari Rautala analyzes the Russian military point of view in the Arctic in a National Defence University working paper.⁷ Rautala argues that the Russian presence in the Arctic will continue to grow. He further states that the main objective most likely is to strengthen its position internationally. In the Russian point of view, other nations are militarizing the Arctic, not Russia. The main leading factor in Russian Arctic policy in Rautala's assessment is the relation to NATO. Russia has the potential, capability and will to fight in the Arctic. It has not been deploying its troops to the far abroad on a large scale compared to the Western states, and has sought to maintain its conventional warfighting capabilities.

Thomas Gentz assesses the Arctic's strategic relevance to Russia.⁸ He argues that the Russian national interest is in securing the region's natural resources for its use. The use of the military is to secure access to the natural resources. The military itself is not a matter of interest in the view of decision making in the Arctic. The military is simply a tool to secure national interest. Gentz's analysis supports Rautala's views that the military is not a driving factor in the Arctic. Being strong and having a say in world politics dictates having the force to ensure a country's position.

⁴ Lester W. Grau and Charles K. Bartels, "The Russian Way of War: Force Structure, Tactics, and Modernization of the Russian Ground Forces," *The Journal of Slavic Military Studies* 31, no. 1 (January 2, 2018): 102–45, <https://doi.org/10.1080/13518046.2017.1414732>.

⁵ Steven Canby, "II. Soviet Warfighting Concepts," *The Adelphi Papers* 15, no. 109 (February 1975): 9–10, <https://doi.org/10.1080/05679327408448350>.

⁶ P. H. Vigor, *Soviet Blitzkrieg Theory* (New York: St. Martin's Press, 1983), 1.

⁷ Ari Rautala, "Arktinen alue Venäjän sotilaallisesta näkökulmasta," *National Defence University Department of Strategic and Defence Studies, Working Papers No 48*, 2013, 22.

⁸ Thomas Gentz, "Venäjä ja arktisen ulottuvuuden strateginen merkitys" (General Staff Officer's thesis, National Defense University, 2017), 87–88, <https://urn.fi/URN:NBN:fi-fe2017111350645>.

Samu Paukkunen and Harri Mikkola analyze the interest in the Arctic environment from the point of view of the large nations.⁹ The focus is on the large nations' interests in the Arctic in military, economic and international cooperation perspectives. Paukkunen and Mikkola argue that the possibilities for international cooperation lie in controlling escalation. Further, they state that de-escalation and the road to better relations in the Arctic is hard to accomplish, due to the general situation in world politics and ambitions towards the Arctic. Their paper provides some of the framework for smaller nations within the Arctic region.

Jesper Vesterby, Nick Daugherty and Patrick C.A.T.van Rooij argue that there is a place for Special Operation Forces in the Arctic.¹⁰ Their research is primarily focused on five countries within the Arctic. The states are Canada, Denmark, Norway, Russia, and the United States. The research provides information on the special forces capabilities in the Arctic and considers the threats in the Arctic region.

Brandon J. Daigle and Brian W. James assess the strategic utility of the High North.¹¹ They consider the warfighting functions in the Arctic to assess the threats in the High North. Their thesis aids research in forecasting the outcomes of different policies. The policies and their outcomes depict situations for when a military could or should be used. The study's scope is within strategic level considerations, and provides an insight of why the Arctic matters.

Johann Hindert focuses on the German views of irregular warfare and argues that "German irregular warfare offers strategic answers to contemporary security challenges."¹² The study focuses on the theories of warfare and historical case studies. The

⁹ Samu Paukkunen and Harri Mikkola, "Suurvaltojen arktis: Muuttuvan geopolitiikan vaikutukset Suomen ulko- ja turvallisuuspolitiikkaan," *Finnish Foreign Policy Paper*, 2021, 20–21.

¹⁰ Jesper Vesterby, Nick Daugherty, and Patric C.A.T. van Rooij, "What Is the Future for SOF in the Arctic?" (master's thesis, Naval Postgraduate School, 2014), 147, <http://hdl.handle.net/10945/44682>.

¹¹ Brandon J. Daigle and Brian W. James, "Assessing the Strategic Utility of the High North: The Colder War" (master's thesis, Naval Postgraduate School, 2016), i, <http://hdl.handle.net/10945/51676>.

¹² Johann Hindert, "German Views of Irregular Warfare" (master's thesis, Naval Postgraduate School, 2015), i, <http://hdl.handle.net/10945/45873>.

focus of the study is not related to geographical areas or climate, but provides a theoretical framework on irregular warfare.

Eric D. King and Matthew R. White analyze the strategic usefulness of conventional force/special operations force interdependence in irregular warfare.¹³ They argue that special operations forces could be best utilized strategically when operating independently in irregular conflicts. They use the Global War on Terrorism as a framework in their study. The irregular warfare cases are drawn from Afghanistan, Iraq and the Philippines. These areas differ in the environment from the Arctic. Regardless of the difference in the environmental factors, the authors address the latest real conflicts, so the lessons learned for irregular warfare should be studied for the Arctic as well.

James G. Hall and William T. Pitt assess the utility of irregular warfare in a great power competition.¹⁴ They argue that irregular warfare should be an enduring and important part of the strategy during a great power competition. Their study concludes that agility and flexibility are key elements for an irregular force and its command structure. The main concentration of the study is how to utilize the capabilities of the United States in a great power competition to support national objectives and interests. The findings in structuring the force for irregular warfare provide a fruitful starting point for examining how the organization of forces should be in the Arctic environment.

Adam Lajeunesse and P. Whitney Lackenbauer notice that having operated in peacekeeping missions, and the shifting focus away from the Arctic, has made personnel as well as organizations forget about what it is to operate in the Arctic.¹⁵ Lajeunesse and Lackenbauer say, “Moving, sustaining, supplying, and communicating with forces in the region remain significant challenges, even with modern technology and equipment at their

¹³ Eric D. King and Matthew R. White, “Strategic Usefulness of Conventional Force/Special Operations Force Interdependence in Irregular Warfare” (master’s thesis, Naval Postgraduate School, 2014), i, <http://hdl.handle.net/10945/55634>.

¹⁴ James G. Hall and William T. Pitt, “The Utility of Irregular Warfare in Great Power Competition” (master’s thesis, Naval Postgraduate School, 2020), i, <http://hdl.handle.net/10945/66647>.

¹⁵ Adam Lajeunesse and P. Whitney Lackenbauer, “Conclusion,” in *Canadian Arctic Operations, 1941–2015 Lessons Learned, Lost, and Relearned* (Fredericton NB: University of New Brunswick, 2017), 443.

disposal.”¹⁶ In the conclusion, Lajeunesse and Lackenbauer argue there must be a certain mentality to cope with the Arctic condition and the friction caused only by the environment, even without the potential threat of an enemy.¹⁷ The lessons forgotten are a good example of a nation changing its interest from traditional security challenges to projecting power far abroad. Building back capabilities that are lost consumes time that might not be available, considering the change of focus and the need of capabilities to support that change.

Charles T. Cleveland analyzes the American way of irregular warfare.¹⁸ He argues that conventional formations have not been capable of conducting it. He suggests that there is not a formation or force for defending against or conducting irregular warfare. He continues that the military personnel lack proficient education for irregular warfare, which is mostly due to the lack of doctrine and concepts.¹⁹ The study provides an interesting insight in the irregular warfare functions within the United States’ military, but covers mostly environments that differ from the Arctic.

Arquilla has studied irregular warfare in the perspective of different irregular warfare leaders throughout times and from different regions.²⁰ Denis Davydov provides a detailed description of irregular warfare in the Russian army in his memoirs.²¹ He describes the irregular means used by Russian partisans against Napoleon’s army.²² Paul Hargrove has studied Russian irregular warfare.²³ He describes how Russians have utilized irregular warfare from the Napoleonic wars to Ukraine in 2014. These studies provide background knowledge on irregular warfare, especially from the Russian perspective.

¹⁶ Lajeunesse and Lackenbauer, 443.

¹⁷ Lajeunesse and Lackenbauer, 447.

¹⁸ Charles T. Cleveland and Daniel Egel, “The American Way of Irregular War: An Analytical Memoir” (RAND Corporation, July 29, 2020), 201–3, <https://www.rand.org/pubs/perspectives/PEA301-1.html>.

¹⁹ Cleveland and Egel, 207–8.

²⁰ Arquilla, *Insurgents, Raiders, and Bandits*.

²¹ Denis Davydov, *In the Service of the Tsar against Napoleon: The Memoirs of Denis Davidov, 1806–1814*, ed. Gregory Troubetzkoy (London: Greenhill Books, 1999).

²² Davydov, 83–161.

²³ Paul Hargrove, “Roots of Russian Irregular Warfare” (master’s thesis, Naval Postgraduate School, 2016), v, <http://hdl.handle.net/10945/51715>.

The literature provides a good background for the Arctic as an environment. The framework of utilizing special operations forces in the Arctic is well studied from the United States' point of view. The strategic thinking of the larger nations is well represented within the literature, but the requirements for military units and individuals that these strategies demand is unclear. However, the lack of doctrine for irregular warfare has been noted in the literature, and without doctrine, it is hard to form tactics. The literature provides some information on how to support forces in the Arctic, but not while the force is conducting irregular warfare against a threat.

There is a lack of information for understanding the utilization of irregular warfare in the High North. The literature does not provide an answer to the utilization of irregular warfare functions in that environment. It has been noted that the Arctic conditions require a totally different mindset and skillset. There is not an answer to how irregular warfare in conjunction with conventional warfare should be organized in the High North. Organizing irregular warfare forces could have a demand for a completely different command and control composition as well.

F. RESEARCH APPROACH

The research concentrates on determining how irregular warfare and special forces should be utilized in conjunction with conventional warfare in the High North. The previous studies regarding irregular warfare will provide the theoretical platform for the study. The framework of threat will be formulated from the doctrinal characteristics of Russian offensive and the reports on war in Ukraine. Historical cases from previous conflicts, such as the Finnish Motti tactics in the Winter War (1939-1940) and Continuation War (1941-1944), are examined in terms of their application to the High North. Considering the threat framework, irregular warfare theories in previous literature and the historical cases provide the basis for further discussion on how to conduct irregular warfare functions in conjunction with conventional warfare.

Chapter II of the thesis examines the characteristics of the Russian offensive doctrine. The characteristics will form a framework for the threat scenario in the High North. The characteristics are collected from academic publications. The current doctrine

is compared to previous Russian and Soviet doctrines. The operational concept is analyzed along with findings regarding the Russian offensive in Ukraine.

Chapter III of the thesis examines the environmental factors in the High North. The Arctic or cold conditions differentiate the warfighting function compared to different environment types. The environmental, climate, and infrastructure of the High North are discussed in relation to the threat described in Chapter II. The data is collected mainly from climate research publications, map analysis, governmental, and non-governmental research publications.²⁴ The research on the environment provides the basic knowledge on the forementioned influencing factors that are different in the High North compared to other environmental areas.

Chapter IV examines the concept of irregular warfare in the High North in response to Russian aggression described in Chapter II. The chapter describes the conventional support of an irregular warfare campaign and concentrates on the tactical utilization of irregular warfare in the High North. The tactics of irregular warfare are examined to support the doctrinal concept and the demands of the environment. The tactics are discussed in comparison to the historical examples of Motti tactics and its potential after reconnaissance and surveillance technology has advanced tremendously. The utilization of irregular warfare is challenged by the Russian offensive doctrine and environmental factors.

The demands of the conditions on the support, logistics, command, and control will be examined in Chapter IV of the research. The physical conditions described in Chapter III will have an effect on what potential means there are for logistics and support in the High North. The command and control will be examined based on the doctrinal and tactical research in the previous chapters. As a conclusion the research will suggest possible organizational changes to best conduct irregular warfare in the High North. The doctrinal and tactical means to conduct irregular warfare are summarized in tactical principles to be considered.

²⁴ Climate information is available for example at: <https://climate.nasa.gov> and www.fmi.fi. Infrastructure can be assessed from maps for example at: maps.google.com.

G. JUSTIFICATION FOR THE RESEARCH APPROACH

The heuristic approach of the thesis is based on the fact that the threat environment and the theoretical and environmental factors are considered first. The understanding of the environment, climate conditions and infrastructure are essential to defining that there is a difference in the warfighting function. This background knowledge supports the researcher and the reader in noting the relevance of the study.

Providing a theoretical background as a foundation for the research plays a key role. The literature and previous studies in irregular warfare and historical battles and tactics in the High North provide the best understanding for a theory of irregular warfare. Historical examples of tactics are scrutinized in the research to see their potential or to discard them in the current context of irregular warfare. Some could be potential ways to utilize force in the information age, others might be outdated.

The interaction between all the parts of the research relating to the theory and challenges in the High North provides a possible way to assess the potential of irregular warfare. The end state could be that there are no implications for change of doctrines or organizations due to the location, but there are no scientific studies identified to support that. Examining the work regarding other geographical areas, such as the conditions in the Russia-Ukraine war, provides the needed information to assess whether or not there is a need for different organizations, doctrines, and tactics.

Considering the military organization is crucial. The “advanced” militaries of the world, to some degree, look alike and have been formed throughout time by the latest technological changes. For an organizational change there are many factors to be taken into consideration that are not limited to the military itself. This research studies the potential of current organizations in conducting irregular warfare in the High North and potential suggestions based on the requirements the research reveals.

Researching the methods of supporting irregular warfare functions in the High North logistically is an important aspect. Survivability is a key in conducting any kind of warfare. The command and control networks and the flow of information of the militaries might face a different kind of test in the High North. The research will examine whether

the organizational posture of the irregular warfare functions, tactics or doctrines require different approaches to command and control.

II. CHARACTERISTICS OF A RUSSIAN OFFENSIVE

The old challenges remain in the information and technology age. The Gerasimov doctrine is not a doctrine and nothing new. Michael Kofman analyzes Gerasimov's description of various political means to influence or coerce other nations.²⁵ He claims the same has been stated multiple times during the Cold War. Frank Hoffman states the new Russian way of using deceptive measures is best described as hybrid rather than new.²⁶ Maskirovka, the Russian term for deception, has been part of the doctrine for a long time. The offensive doctrine remains very similar to what it was during the Soviet era.

Russian offensive doctrine is to conduct deep battle. Lester Grau and Charles Bartels characterize deep battle as the use of long-range fires supported by air-to-ground fires, and landings from the sea or air.²⁷ The purpose of the fast deep battle is to break or at the very least weaken the adversary's order of battle. Partisans can be utilized to tie enemy forces.²⁸ Deep battle has been a part of the Russian offensive doctrine for decades.

Steven Canby states the Soviet Union adopted the German blitzkrieg tactics to be able to rapidly attack NATO.²⁹ He states the need for speed was paramount to be able to counter the much more powerful long-term military resources of NATO. The blitzkrieg tactics main objective is to form breakthroughs in the enemy lines. Advancing rapidly to break the enemy order of battle and maintain initiative for the attacker.³⁰ P.H. Vigor confirms Canby's work emphasizing speed in Soviet doctrine in order to have an advantage

²⁵ Michael Kofman, "Russian Hybrid Warfare and Other Dark Arts," War on the Rocks, March 11, 2016, <https://warontherocks.com/2016/03/russian-hybrid-warfare-and-other-dark-arts/>.

²⁶ Frank Hoffman, "On Not-So-New Warfare: Political Warfare vs Hybrid Threats," War on the Rocks, July 28, 2014, <https://warontherocks.com/2014/07/on-not-so-new-warfare-political-warfare-vs-hybrid-threats/>.

²⁷ Grau and Bartels, "The Russian Way of War," 48.

²⁸ Grau and Bartels, 48.

²⁹ Canby, "II. Soviet Warfighting Concepts," 9–10.

³⁰ Canby, 9–10.

by swiftly attacking NATO.³¹ High speed and compelling the enemy with fast, deep strikes has remained in the Russian offensive doctrine to keep an element of surprise.

Grau and Bartels name surprise as pivotal to a Russian offensive.³² To be more likely to have the element of surprise, one side needs to have the initiative. Initiative can mainly be gained by offensive actions. On the other hand, by being deceptive in defense, the defender may be able to gain the initiative.³³ Márk Takács also emphasizes the importance of surprise in Russian warfare. “Maskirovka” is important in not being detected too early by the opposing forces.³⁴ Surprise can be achieved by speed or masking own actions.

Russia has a highly mobile and armored army, and mobile and armored vehicles utilize the effects of the massed fires to maintain momentum and initiative.³⁵ Scott Boston and Dara Massicot state the Russian doctrine relies heavily on massed use of fires.³⁶ They note the amount of precision ammunition and capabilities is limited, and the emphasis is on massed long-range fires. Takács states that during the war in Eastern Ukraine the use of MLRS area fires was extensive.³⁷ The mobility provides the potential for deep battle. An offensive is heavily supported by air-to-ground fires. Air-to-ground support has proven to be difficult for Russian air assets in the war in Ukraine.³⁸ The joint offensive requires a

³¹ Vigor, *Soviet Blitzkrieg Theory*, 201.

³² Grau and Bartels, “The Russian Way of War,” 48–49.

³³ Grau and Bartels, 48–49.

³⁴ Márk Takács, “Short Study: Describing the Major Features of the Russian Battalion Tactical Group,” *Academic and Applied Research in Military and Public Management Science* 20, no. 2 (2021): 56, <https://doi.org/10.32565/aarms.2021.2.5>.

³⁵ Scott Boston and Dara Massicot, “The Russian Way of Warfare: A Primer” (RAND Corporation, December 7, 2017), 2, <https://www.rand.org/pubs/perspectives/PE231.html>.

³⁶ Boston and Massicot, 2.

³⁷ Takács, “Short Study,” 61.

³⁸ David Axe, “The Russian Air Force Is Back in the Fight in Ukraine. But It’s Not Making Much of a Difference.,” *Forbes*, September 16, 2022, <https://www.forbes.com/sites/davidaxe/2022/09/16/the-russian-air-force-is-back-in-the-fight-in-ukraine-but-its-not-making-much-of-a-difference/>; Tyson Wetzel, “Ukraine Air War Examined: A Glimpse at the Future of Air Warfare,” *Atlantic Council* (blog), August 30, 2022, <https://www.atlanticcouncil.org/content-series/airpower-after-ukraine/ukraine-air-war-examined-a-glimpse-at-the-future-of-air-warfare/>.

very well trained and educated organization. The fixed wing and rotary wing sorties are conducted in conjunction with the use of indirect fires.

The Russian offensive is conducted in three waves or formations of troops. First, the battle is initiated after massed fires by the forward detachments. Then, the forward detachment is followed by two echelons of forces. Next, the first echelon has the main combat power. Further, the success of the first echelon is exploited by the second echelon, which continues from the gaps in the enemy troops provided by the first echelon.

The other branches of arms support the offensive. Air defense and anti-armor troops cover the flanks along with engineer forces. The engineer forces have capabilities for building a crossing point over water or repairing bridges if necessary. The use of electronic countermeasures is an integral part of disrupting the enemy's capability to use the electromagnetic spectrum for leadership.

A. COMBAT MISSIONS IN GENERAL

Grau and Bartels define the general principles of Russian combat missions.³⁹ There is a long history of studying the art of war in Russia by their military theorists. The change in warfare today requires further reach, more versatile and adaptive troops, as well as better mobility. The defensive formations have fewer troops that form continuous defensive positions. There are more open flanks and meeting battles. The focus is on taking over areas from where the battle space can be dominated, and the defending force's tactical posture can be compromised. The focus on combat is to conquer the artillery forces supporting the maneuver forces. While this occurs, the objective lines remain important.⁴⁰ The aim is to defeat the firepower of the defending force to reach ordered objectives.

Grau and Bartels state the tactical units have limitations in the objectives dictated by their higher headquarters.⁴¹ "Russian tactical units will be assigned objective limits. Russian maneuver brigades normally are assigned an immediate and subsequent mission,

³⁹ Grau and Bartels, "The Russian Way of War," 41.

⁴⁰ Grau and Bartels, 41.

⁴¹ Grau and Bartels, 41.

and a mission of the day.”⁴² A Russian brigade’s immediate objective is commonly behind the enemy’s first-echelon battalion’s defensive positions. The brigade’s subsequent objective is behind the enemy’s first-echelon brigade’s defensive positions. The mission-of-the-day objective is commonly behind the enemy’s second-echelon defensive positions. The mission of the day is not a definite objective and can change due to the circumstances on the battlefield. Dastagir Wardak Ghulam describes the Soviet front’s offensive objectives similarly.⁴³ Grau and Bartels say the mission for a brigade will be refocused every day.⁴⁴ The subsequent objective of a smaller tactical unit, such as a brigade, usually equals its parent army’s immediate objective. Smaller tactical units, such as battalions, are usually assigned only their immediate objective and direction to prepare to attack to from the immediate objective.⁴⁵ To reach the objectives, the units are ordered to make different formations.

Grau and Bartels note that the maneuver units form a combat formation for offense. This is conducted by Russian brigades and their subordinate units. The combat formation can be formed directly from a march. Same can be conducted from a pre-combat formation. Mission and assessed enemy position dictate from which previous formation the new combat formation is formed. The subunits of a brigade can also be utilized in different formations depending on the mission.⁴⁶ These formations could be described as task organizations.

A brigade can undertake an offensive on its own. Most commonly it is in combat as a part of an army. As a subunit to an army, the brigade can be utilized to maneuver to envelop an enemy or with another brigade to encircle the enemy. A brigade can also be used to be on several axes of an army’s attack. A Russian brigade is preferably used to

⁴² Grau and Bartels, 41.

⁴³ Dastagir Wardak Ghulam, “The Voroshilov Lectures, Materials from the Soviet General Staff Academy. Volume 3. Issues of Operational Art.” (Washington, D.C: National Defense University, 1992), 76, <https://apps.dtic.mil/sti/citations/ADA310980>.

⁴⁴ Grau and Bartels, “The Russian Way of War,” 41.

⁴⁵ Grau and Bartels, 41.

⁴⁶ Grau and Bartels, 42.

conduct a meeting battle in an offensive. The objective of a meeting battle is to have or gain the initiative and attack against an unprepared enemy. Attacking on a prepared and entrenched enemy has the potential for greater losses in manpower, combat power and time.⁴⁷ A brigade capability to attack from different postures can surprise an enemy.

A defending enemy can be attacked by deliberate contact or straight from march. The march is preferred⁴⁸ to maintain momentum and initiative. Grau and Bartels agree offensive maneuver is preferred to be conducted as a surprise from a march or a pre-combat formation.⁴⁹ Most commonly, the first battle is conducted against a covering force. The Russian forward attack force is intended to power through a weaker enemy force. Air assets, missiles and artillery are utilized in support of the forward detachment. Air support and fires may be utilized to break the enemy's forward defense from its main defense lines.⁵⁰ The doctrine and real life do not always align. Tyson Wetzel notes Russia has not been able to establish air superiority in Ukraine.⁵¹ Wetzel and David Axe state the Russian air support operations have not been effective.⁵² The lack of air superiority and limited effectiveness in an open area indicates the capability is limited also in other environments.

Grau and Bartels say Russians perceive a prepared enemy defense to be hard to conquer, also known as breakthrough.⁵³ The simultaneous and synchronized utilization of air support, use of missiles, use of artillery and electronic countermeasures are the keys to success. The Soviet offensive concepts have similar principles.⁵⁴ The simultaneous utilization of assets is aimed to concentrate all the firepower at the defender to diminish

⁴⁷ Grau and Bartels, 46.

⁴⁸ Takács, "Short Study," 57.

⁴⁹ Grau and Bartels, "The Russian Way of War," 46.

⁵⁰ Grau and Bartels, 46.

⁵¹ Tyson Wetzel, "Ukraine Air War Examined: A Glimpse at the Future of Air Warfare," Atlantic Council, August 30, 2022, <https://www.atlanticcouncil.org/content-series/airpower-after-ukraine/ukraine-air-war-examined-a-glimpse-at-the-future-of-air-warfare/>.

⁵² Axe, "The Russian Air Force Is Back in the Fight in Ukraine. But It's Not Making Much of a Difference."

⁵³ Grau and Bartels, "The Russian Way of War," 46.

⁵⁴ Ghulam, "The Voroshilov Lectures, Materials from the Soviet General Staff Academy. Volume 3. Issues of Operational Art.," 28, 33.

their combat power.⁵⁵ A fast breakthrough of enemy defenses is the aim of the attack to be able to widen the break for follow-on forces. The follow-on forces' objective is to push through to the rear of the enemy to defeat the reserves. Meeting battles are the preferred means of combat in defeating enemy reserves.⁵⁶ The preference for the meeting battles further emphasizes the aim of fighting against unprepared defending formations.

Grau and Bartels describe the Russian brigades as being able to conduct multiple different tactics on offense.⁵⁷ A motorized rifle brigade can conduct a meeting offensive with not much time or opportunity to prepare for the engagement. A brigade can also conduct an attack from the march formation. The other forms of attack can be an attack against an opponent that is withdrawing, through their own units that are in defensive positions or by attacking from their own positions when in contact. A brigade can also go on pursuit.⁵⁸ Takács names the Battalion Tactical Groups as having five different combat maneuvers. These are: envelopment, encirclement, breakthrough, frontal attack, and evasive movement.⁵⁹ All of the tactical maneuvers require logistics and fires in support.

B. ECHELONMENT OF FORCES

Grau and Bartels describe in detail how the offensive forces form different echelons.⁶⁰ Behind the forward detachments, a Russian brigade and its subordinates are commonly in a two-echelon formation. Combat power is normally divided, with the first echelon having half to two-thirds of the total combat power. The second echelon normally has one-third to half of the brigade's combat power. The second echelon is not a reserve in the attack. Instead, it is a combined arms force. Its mission is to be pulled into the combat

⁵⁵ Grau and Bartels, "The Russian Way of War," 46.

⁵⁶ Grau and Bartels, 46.

⁵⁷ Grau and Bartels, 142.

⁵⁸ Grau and Bartels, 142.

⁵⁹ Takács, "Short Study," 58.

⁶⁰ Grau and Bartels, "The Russian Way of War," 46.

after the first echelon, unlike a traditional reserve.⁶¹ The typical attack formation of a Motorized Rifle Battalion is depicted in Figure 2.

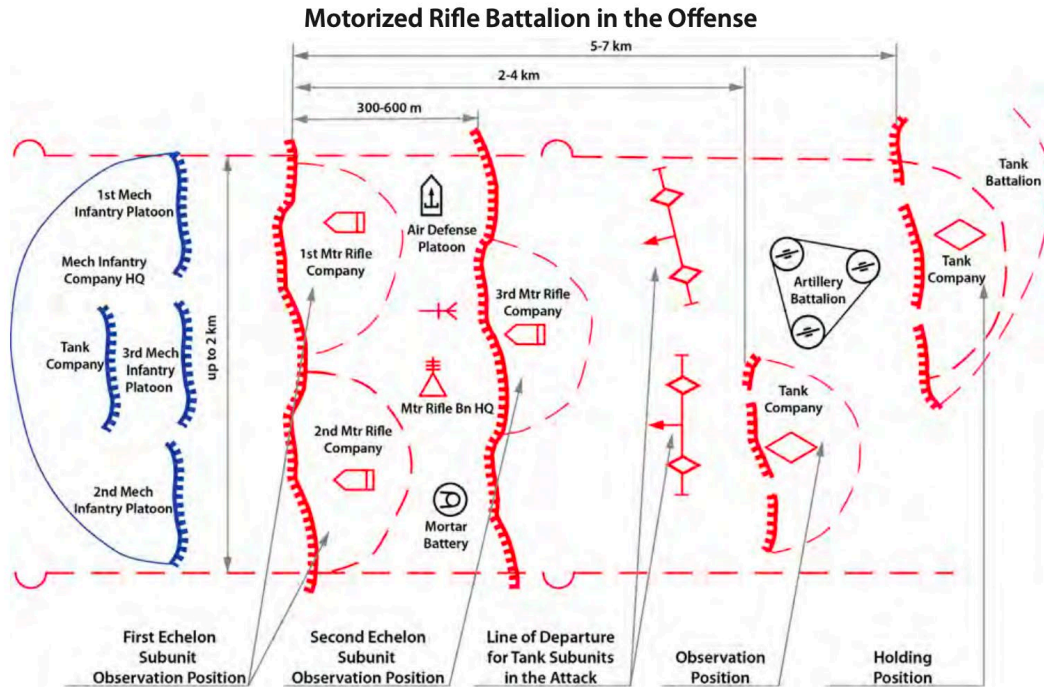


Figure 2. Typical motorized rifle battalion attack formation from positions in direct contact.⁶²

The first echelon is responsible for the main attack.⁶³ The objective of the first echelon is the brigade's immediate objective and continues toward the subsequent objective. The second echelon is drawn into battle to advance on the first echelon's success. The attack is intended to be continuous by the second echelon to reach the brigade's subsequent objective. Success is taken advantage of in the attack by committing the second echelon to the sector where the first echelon has had success. Having this flexibility, the direction of the second echelon's attack might differentiate from the originally planned direction. The second echelon is intended to attack against weaker areas of the enemy

⁶¹ Grau and Bartels, 46.

⁶² Source: Grau and Bartels, 105.

⁶³ Grau and Bartels, 46.

defensive positions rather than the strong prepared defenses. The gaps or breaches for the second echelon may be formed by tactical nuclear or conventional fires. The second echelon may be tasked to pursuit should the enemy withdraw, or to destroy the enemy on the flanks of the first echelon. It may also be tasked to overcome a counterattack or replace units of the first echelon.⁶⁴ The echelonment of forces is aimed to have a break in the defenses and provide the following forces to exploit success.

Ghulam has described the Soviet front echelonment.⁶⁵ The principles are very similar to the Grau and Bartel's description of a brigade's offensive. Ghulam states the armies of the front were in two echelons that had their individual missions. The first echelon was two armies, and the second echelon was one army. The Soviet first echelon was responsible for defeating the enemy's first echelon defenses. The echelonment of forces is same doctrinal approach as in the Soviet era. The size of the formations studied is different, but the main principle is the same.

C. SUPPORTING THE OFFENSE

Grau and Bartels describe the composition of the Russian army being based on heavy use of artillery, and it consists of a lot of combat vehicles.⁶⁶ They state there is a difference as the Western militaries have switched to precision fires. The use of mass fires by an extensive amount of artillery is aimed to destroy vast areas of enemy territory to prepare for an attack. The use of precision fires and electronic countermeasures are deployed in conjunction with the mass fires. Masking plays a pivotal role in fires along with the mass fires.⁶⁷ The fires are provided with maneuverable indirect fire units.

Grau and Bartels have a detailed description of the Russian Brigade indirect fire units.⁶⁸ The Russian Brigade Artillery Group has two 152mm howitzer battalions and a

⁶⁴ Grau and Bartels, 46.

⁶⁵ Ghulam, "The Voroshilov Lectures, Materials from the Soviet General Staff Academy. Volume 3. Issues of Operational Art.," 67, 69–70, 106.

⁶⁶ Grau and Bartels, "The Russian Way of War," 143.

⁶⁷ Grau and Bartels, 143.

⁶⁸ Grau and Bartels, 143.

122mm multiple rocket launcher battalion. The Brigade Artillery Group can receive other artillery battalions under its command. The Russian artillery is pushed forward so that the closest firing positions are as close as one to four kilometers from the front line of their own troops. This provides depth for the support of the attack with a further reach of fires. Howitzer units have a primary and two or more alternative firing positions within their platoons. The firing positions are normally changed after previous and before new firing missions. Deception is implemented in the use of artillery by using deception positions to mask the real firing position locations. Russian artillery may use deception positions to fire harassment and interdiction fires from them. During an attack the artillery units will move forward to provide necessary fires toward the depth of the enemy. The forward-moving elements may be the size of a battery or a battalion depending on the needs for fires to support the attack throughout the whole battle.⁶⁹ In addition to fire support for the attacking units, the formations need defensive capabilities.

Grau and Bartels continue by stating the air defense systems of the Russian Army are modern and mobile.⁷⁰ They are comprised of missile and gun units to provide air defense for the attacking units. The Army brigade's air defense is an air defense artillery and an air defense missile battalion. The brigade rapid fire anti-aircraft artillery comes in place in case of enemy electronical disturbance of missiles. The first echelon is typically supported by a Tunguska missile battery and the Brigade Artillery Group is typically supported by Strela-10 rocket battery platoons. The first echelon is also covered by two platoons with Igla man-portable air-defense systems (MANPADS). The higher and aerial protection for the brigade is conducted by Tor-M1 anti-aircraft missile battalion.⁷¹ The ground-to-air systems secure the troops from the air and ground-to-ground systems from the enemy's tank units.

⁶⁹ Grau and Bartels, 143.

⁷⁰ Grau and Bartels, 143.

⁷¹ Grau and Bartels, 143.

Grau and Bartels have found the Russian brigade has four artillery battalions, of which one is the antitank artillery battalion.⁷² The battalion has antitank guns and missiles to destroy enemy armored vehicles. The battalion serves as the antitank reserve, situated close to the engineer company's mobile obstacle detachment. The battalion lays antitank mines where ordered.⁷³ With all these elements, the size of the forces and area required is vast.

Grau and Bartels state the brigade march column can be 30 kilometers long when drawn into attack.⁷⁴ The support columns in the war in Ukraine have been as long as 60 kilometers,⁷⁵ making them very vulnerable to hit-and-run raids. The attack zone is typically six kilometers wide, but it can range from four to eight kilometers. The front of the attack is typically two kilometers but can range up to four kilometers wide. The distance between echelons is typically five to 15 kilometers. The depth of the first echelon is estimated to be three kilometers. With the Brigade Artillery Group, the depth is estimated to be five kilometers. The whole brigade area is 15 kilometers in depth. The brigade is intended to move on two or more axes because the total formation would extend to 20 kilometers when deployed from column to line. A battalion has a typically one to two kilometers wide front of an attack and two to five kilometer attack zone. The Brigade Artillery Group supports the movement to contact. The first fire effects are intended to suppress the enemy artillery. After aiming at the enemy artillery, the fires are shifted to the front line of the enemy defenses. When the troops dismount, the fires are shifted to the rear of the front line of the enemy defense. This aims to conceal the defense of the enemy between the attacking force and their indirect fires. When the attack advances, the artillery is moved forward to support the full depth of the attack.⁷⁶ The distances can cause delays in getting the required support for the troops in contact.

⁷² Grau and Bartels, 143.

⁷³ Grau and Bartels, 143.

⁷⁴ Grau and Bartels, 143.

⁷⁵ Luke McGee, "Here's What We Know about the 40-Mile-Long Russian Convoy Outside Ukraine's Capital," CNN, March 3, 2022, <https://www.cnn.com/2022/03/03/europe/russian-convoy-stalled-outside-kyiv-intl/index.html>.

⁷⁶ Grau and Bartels, 143.

D. CONCLUSIONS

Russian offensive doctrine has remained very similar for decades. Blitzkrieg tactics have been implemented in the Soviet Union and many of its principles remain the same. Russian offensive doctrine aims at deep breakthroughs through enemy lines. Optimal use of these tactics is in a terrain where there is a possibility to change the advancing formation. Open plains and areas with no channelizing features are preferred. The doctrine is aimed to counter the perceived threat from NATO. Thus, the doctrine is optimized towards Central European areas.

Deep breakthroughs can cause the distances between the troops in contact and all supporting elements to grow afar. There is a great need for securing the lines of communication and resupply. Inevitably, there is weak flank security for the resupplying troops when the distances between the supported and the supporter grow. Thus, there is a possibility for a defending force to actively search for windows of opportunity for flanking movements. These flanking movements could be aimed at resupplying troops or other supporting branches, such as artillery.

The element of surprise and maskirovka remain in the doctrine.⁷⁷ The maskirovka was applied successfully in 2014 in Ukraine. In 2022 the Western intelligence had good information on the timing of the Russian attempt to invade Ukraine. The difference is in projecting a large force in contrast to small, camouflaged units, or even teams. The projection of large force will be detected by intelligence and by civilian entities.

The war in Ukraine has shown Russia has tried to implement its doctrine in the war. Long distances between the attacking forces and the supporting forces are examples of the doctrine and its vulnerability. Canby states the armored blitzkrieg tactics require a relatively small amount of logistical support after a breakthrough.⁷⁸ The experience in Ukraine clearly shows the long stretches to maintain an offensive from Russia's own logistic bases opens opportunities for the defending force to use flanking movements to

⁷⁷ Grau and Bartels, "The Russian Way of War"; Ghulam, "The Voroshilov Lectures, Materials from the Soviet General Staff Academy. Volume 3. Issues of Operational Art."

⁷⁸ Canby, "II. Soviet Warfighting Concepts," 10.

attack soft resupplying targets and troops.⁷⁹ The open flanks provide many possibilities for irregular warfare conducting ambushes and hit-and-run attacks. The hardship of logistics is one of the clear weaknesses of the Russian doctrine.

The assessment of Russian offensive actions and its military capabilities in the war in Ukraine is ongoing. The problems in Russian force structure are severe and the replacement of the great number of lost troops and material are and not fast. The change in the way of fighting a war by exploiting comparative strengths against the defender's comparative weaknesses could be an option to have better results. There is no possibility to draw conclusions yet as to whether Russia would use the exact same doctrine in other theaters. But there has not really been a change in the doctrine in decades, or in the way they have been fighting in Ukraine.

⁷⁹ Bonnie Berkowitz and Artur Galocha, "Why the Russian Military Is Bugged down by Logistics in Ukraine," *Washington Post*, March 30, 2022, <https://www.washingtonpost.com/world/2022/03/30/russia-military-logistics-supply-chain/>.

III. THE ENVIRONMENT OF THE HIGH NORTH

The Kola Peninsula in the Arctic Ocean is a strategically important area for Russia.⁸⁰ One of two Russian strategic naval bases is on the Kola Peninsula close to the NATO border of Norway.⁸¹ The Kola Peninsula also has one of the most important ports of Russia, Murmansk. The Kola Peninsula is surrounded by the sea and vast areas of wilderness. The only land connections to the continental parts of the country are a road and a railroad that run parallel to the border of Finland.

Norway, and NATO have a sophisticated radar station in Vardø,⁸² and the Kola Peninsula is strategically important for Norway's access to the Arctic Sea and for its security.⁸³ Vardø is located on the easternmost tip of Norway, on the shore of the Arctic Sea. The location is only approximately 30 kilometers from Russia. The Arctic Sea and its resources remain a disputed issue between Norway and Russia.⁸⁴ Russia having an interest in the Arctic makes the High North a region of interest and potential confrontation.

A. DISTANCES

Distances in the High North are great. There are vast areas of territory that separate the centers of populations, military force concentrations or bases and industrial centers. Long distances form a large space for potential conflict. Wide expanses of territory and a lack of infrastructure do not provide the possibility for the fast disposition

⁸⁰ Keir Giles and Mathieu Boulegue, "Russia's A2/AD Capabilities: Real and Imagined," *The U.S. Army War College Quarterly: Parameters* 49, no. 1 (March 1, 2019): 30, <https://doi.org/10.55540/0031-1723.2860>.

⁸¹ Amy F. Woolf, "Russia's Nuclear Weapons: Doctrine, Forces, and Modernization" (Washington, D.C: Congressional Research Service, April 21, 2022), 17, <https://sgp.fas.org/crs/nuke/R45861.pdf>.

⁸² Tapani Leisti, "Norjan itäisin kaupunki olisi sodassa Venäjän kohde, ja paikalliset tietävät sen – yhteistyö naapurin kanssa jatkuu uhasta huolimatta," *Yle Uutiset*, May 19, 2022, <https://yle.fi/uutiset/3-12451001>.

⁸³ Giles and Boulegue, "Russia's A2/AD Capabilities," 30.

⁸⁴ Andreas Østhagen, "Relations with Russia in the North Were Already Tense. Now It's Getting Worse.," *The Arctic Institute* (blog), February 25, 2022, <https://www.thearcticinstitute.org/relations-russia-north-tense-getting-worse/>.

of forces. Therefore, the element of surprise is harder to gain. Thus, the sheer size of the area potentially provides stability. The movement of troops toward the border areas will take time and will most likely be impossible to conduct in secrecy. Long distances provide a possibility for part of the defensive force to be dispersed to minimize its vulnerability and to concentrate force in certain areas to a counterattack with mobility.

The time needed to concentrate massed conventional forces to a certain area is long due to the distances. The defender can adjust and prepare for concentrated defense with some dispersed units for counterattacks if the opposing force's disposition is towards assuming attack postures and positions. Time and distance impose on the actors a possibility to maintain a reasonably low level of units in readiness in peacetime. The current posture of Russian forces in their garrisons provides a possibility to project an offensive force towards Finland and Norway. The air mileage, on the other hand, is relatively short and most of the High North is within the reach of Russian anti-access/areal denial capabilities.⁸⁵ The anti-access/areal denial capabilities limit the use of airspace but do not completely restrict its use. Distance and time affect all the nations equally, but the initiative can be an advantage should an attack occur from current positions. Distances between different cities and military installations is depicted in Table 1.

⁸⁵ Giles and Boulegue, "Russia's A2/AD Capabilities," 30.

Table 1. Distances between the major cities and major military instalments in the area.

Montsegorsk – Rovaniemi	346 km
Montsegorsk – Sodankylä	279 km
Montsegorsk – Ivalo	236 km
Montsegorsk – Oul	470 km
Raja-Jooseppi – Ivalo	52 km
Raja-Jooseppi – Rovaniemi	339 km
Salla border crossing point – Salla	22 km
Salla border crossing point – Kemijärvi	87 km
Salla border crossing point – Rovaniemi	172 km
Alakurtti - Salla border crossing point	73 km
Alakurtti – Rovaniemi	246 km
Alakurtti – Sodankylä	227 km
Alakurtti – Kemijärvi	162 km
Murmansk – Rovaniem	581 km
Murmansk – Sodankylä	453 km
Murmansk – Ivalo	294 km
Pechenga – Garrison of Søer-Varanger	90 km

The limiting conditions affect a conventional mounted force and the effective distance covered by the vehicles can vary depending on the conditions. The winter training manual of the Finnish Defence Forces states the consumption of fuel on a tracked light personnel carrier can double in more demanding conditions.⁸⁶ The range of all the vehicles provides a possibility for Russia to project its forces from garrisons to Finland or Norway. T-72 main battle tank can consume fuel from 250 to 500 liters per 100 kilometers.⁸⁷ This indicates the effective distance of a main battle tank correlating to the consumption of a tracked light personnel carrier. Thus, the effective range when in battle or in deep snow or muddy conditions can reduce the effective range of all the means of mounted movement to approximately half of the range. The effective range is then restricted to close or outside

⁸⁶ Pääesikunta Puolustusvoimat maavoimaosasto, *Talvikoulutusopas (TkoulO)* (Helsinki: Edita Prima Oy, 2004), 68.

⁸⁷ Hannu Ahonen, “T72M1-Taistelupanssarivaunu,” *Tekniikan Maaailma*, no. 12 (1994): 79, https://wp.tekniikanmaailma.fi/wp-content/uploads/2015/10/TM_12_94_T72.pdf.

the major cities in northern Finland and smaller centers of habitation in both Finland and Norway. The range of different military vehicles is depicted in Table 2.

Table 2. Range of vehicles

Main battle tank	up to 500 km ⁸⁸
Infantry fighting vehicle	up to 600 km ⁸⁹
Armored personnel carrier	up to 500 km ⁹⁰
Tracked light personnel carrier	up to 280 km ⁹¹
Snowmobile	up to 340 km ⁹²

The limitations in the effective range affect all nations equally. The use of tanks in the High North may not be feasible due to the limitations and a conventional mounted force is affected by the limited range. This supports the use of small irregular warfare units in the High North. Understanding the limitations and leveraging the use of terrain with different means of mobility become vital. The military force better prepared and better knowledge of the terrain features can have an advantage in the High North.

B. STRATEGIC DEPTH

Great distances and the lack of infrastructure can provide strategic depth. “Strategic depth enables a state to trade space for time.”⁹³ The internal depth of territory can be used to absorb invading forces. The invading force can then be counterattacked before it reaches population centers. The depth of Finnish Lapland is mostly between 220 to 280 kilometers.

⁸⁸ Wikipedia, s.v. “Main Battle Tank,” Last modified September 29, 2022, https://en.wikipedia.org/w/index.php?title=Main_battle_tank&oldid=1112993100#Mobility.

⁸⁹ Wikipedia, s.v. “BMP-3,” Last modified October 12, 2022, <https://en.wikipedia.org/w/index.php?title=BMP-3&oldid=1115582074>.

⁹⁰ Military-Today, “MT-LB Multi-Purpose Armored Vehicle | Military-Today.Com,” accessed October 12, 2022, <http://www.military-today.com/apc/mlb.htm>.

⁹¹ Puolustusvoimat, *Talvikoulutusopas (Tkoulo)*, 158–60.

⁹² PowerSportsGuide, “How Much Fuel Does a Snowmobile Use?” accessed October 12, 2022, <https://powersportsguide.com/snowmobile-fuel-consumption/>.

⁹³ Steven J Rosen, *Military Geography and the Military Balance In the Arab-Israel Conflict* (Jerusalem: Hebrew University of Jerusalem, 1977), 12.

The narrowest part of Russia from the border of Finland to the sea is 145 kilometers. The High North itself is a limited area in the thesis, but the whole area of different countries has to be considered to understand the possibilities for force projection to and from other parts of the countries. The strategic depth of the countries is depicted in Table 3.

Table 3. Strategic depth of the nations⁹⁴

Country	Area	Length of land borders	Area/perimeter
Russia	17,098,242 km ²	22,407 km	763:1
Finland	338,424 km ²	2,690 km	126:1
Norway	323,802 km ²	2,551 km	127:1
Sweden	450,295 km ²	2,233 km	201:1

Russia has vast overall strategic depth within its territory. It can change the disposition of forces within and between its military districts and Arctic Strategic Command. It also has capabilities for deploying forces from other districts to reinforce a military district or the Arctic Strategic Command. These capabilities include aerial delivery or train transportation. These strategic movements will most likely be noted by international intelligence due to their proximity to the border to Finland.

Finland, Sweden, and Norway have more limited strategic depth and are all reachable by Russian anti-access/area denial capabilities from their peacetime locations. The Baltic Sea provides a possibility to the capabilities to reach even further. In the High North, the lack of infrastructure provides strategic depth more than can be perceived from pure calculations. Most of the High North in the Nordic countries is uninhabited wilderness. Thus, the Nordic countries can absorb invading forces, especially with the scarce road network needed for mounted movement. A possible amphibious landing operation from the Kola Peninsula or Kaliningrad can be closely monitored by the Nordic

⁹⁴ Wikipedia, s.v. “List of Countries and Territories by Border/Area Ratio,” Last modified March 14, 2022, https://en.wikipedia.org/w/index.php?title=List_of_countries_and_territories_by_border/area_ratio&oldid=1077138506.

states. A littoral operation to continental Norway is unlikely due to the mountainous terrain in the Norwegian High North. A marine landing could be used to tie up defending forces in the High North, but the possibility to exploit that success will be limited.

C. BORDER TOPOGRAPHY AND NATURAL ENVIRONMENT

The border areas in the High North are mostly inhabited areas. Lower parts of the High North are mostly forested hills, marshes, and small bodies of water.⁹⁵ The northern parts are vast areas of wilderness, with fells after fells along the borderline. In the northernmost parts, the area is treeless. Along with the fells, there are numerous natural barriers of water. Some areas along the border are completely covered by marshes.

The topography forces conventional mounted movement mostly on the roads. Southern parts of the area have almost impassable forests where maneuvering even on snowmobiles and skis is limited. Regular forests and northern parts provide a possibility for maneuvering on light tracked vehicles or snowmobiles during the winter. The wilderness provides a possibility for unmounted movement, which requires thorough preparation due to the environmental conditions.

D. POPULATION AND MANPOWER

The High North is sparsely populated and for the most part in its natural form. The distances from nearest roads or populated areas can reach up to hundreds of kilometers.⁹⁶ The centers of population are small. The only city in the Arctic exceeding 100,000 in population is Murmansk in Russia. The rest are mostly smaller than 30,000 people, with a few between 30,000 to 100,000 people.⁹⁷ The population and manpower of the countries is depicted in Table 4.

⁹⁵ Juha Kersalo and Pentti Pirinen, eds., *Suomen Maakuntien Ilmasto*, No. 2009: 8 (Yliopistopaino, 2009), 132.

⁹⁶ Google Maps, "Google Maps," accessed July 8, 2022, <https://www.google.com/maps/@66.2832159,66.2112719,5.25z>.

⁹⁷ Lapin yliopisto Arktinen keskus, "Pohjoisia asutuskeskuksia ja väkiluku 2020," accessed July 8, 2022, <https://www.arcticcentre.org/FI/arktinenalue/Karttoja/asutuskeskuksia>.

Table 4. Population and manpower

Country	Population ⁹⁸	Growth trend	Active military ⁹⁹	Paramilitary/reserves
Russia	143,446,060	Decline	1,454,000	250,000 ¹⁰⁰
Finland	5,541,700	Growth	27,000	250,000/870,000 ¹⁰¹
Norway	5,408,320	Growth	23,000	40,000 ¹⁰²
Sweden	10,415,810	Growth	15,000	31,300 ¹⁰³

The exact number of forces capable of Arctic warfare in the countries is difficult to define, but the overall manpower describes the force ratio between the countries. Russia has by far the largest military force of the countries in the High North. Finland has a strong reserve to counter the Russian threat, with a wartime strength of 280,000 personnel. Norway has been a part of NATO since its establishment, so the need for a large active or reserve personnel is less. Sweden has been a neutral country located between friendly countries, and its military strength is limited.

Population and its heterogeneity are factors in a country’s unity. The different ethnic groups in the countries can provide a possibility for external influence of the local population by another country or the use of clandestine infiltration methods. This kind of infiltration was demonstrated by Russia in Ukraine in 2014 by using the “green men.”¹⁰⁴ Finland’s ethnic minorities are generally small. The total of foreign descendants in 2021

⁹⁸ The World Bank, “Population, Total,” accessed October 3, 2022, <https://data.worldbank.org/indicator/SP.POP.TOTL>.

⁹⁹ The World Bank, “Armed Forces Personnel, Total,” accessed October 5, 2022, <https://data.worldbank.org/indicator/MS.MIL.TOTL.P1>.

¹⁰⁰ Global Firepower, “Reserve Military Manpower (2022),” Global Firepower 2022, 2022, <https://www.globalfirepower.com/active-reserve-military-manpower.php>.

¹⁰¹ Puolustusvoimat, “Reservissä - Reserviläinen,” Intti.fi, accessed October 5, 2022, <https://intti.fi/reservissa>.

¹⁰² Norwegian Armed Forces, “Armed Forces in Numbers,” August 19, 2022, <https://www.forsvaret.no/en/about-us/armed-forces-in-numbers>.

¹⁰³ Försvarsmakten, “Personalsiffror,” November 3, 2022, <https://www.forsvarsmakten.se/sv/organisation/om-var-organisation/personalsiffror/>.

¹⁰⁴ The green men are commonly used for the Russian infiltrated troops to Crimea and Eastern Ukraine, with no recognizable unit insignia.

was 469,633 in 2021, including second-generation foreigners. Less than 100,000 foreigners have Russian or former Soviet Union descentance.¹⁰⁵ The population in Norway is highly homogenous. 81.5% of the population is Norwegian, 8.9% other European and 9.6% other ethnicities. The population in Sweden is 80.3% Swedish, and 19.7% other, of which Syrian, Iraqi and Finnish represent the largest ethnicities. Russia is highly heterogenous in terms of ethnicity. They have close to 200 different national or ethnic groups in the country. In the country, 77.7% is considered Russian and 22.3% other ethnicities.¹⁰⁶ All the countries in the High North have a Sámi minority ranging from Norway to Kola Peninsula.¹⁰⁷

E. ROAD NETWORK

The road network in the High North is scarce, and crossing the border to another country is limited to a few roads. The roads are between Finland and Russia, and Norway and Russia. The rest of the borderlines reside on bodies of water. There are only 15 roads that cross the shared 1,343.6 kilometers of border¹⁰⁸ between Finland and Russia. Six of these roads are in the High North.¹⁰⁹ Most of the border-crossing roads are narrow two-lane roads, and they continue as two-lane roads inland. Russia and Norway have two roads crossing the border.¹¹⁰

The road network covers fewer areas and are narrower further north. This forces a conventional military force to drive in columns, especially when it comes to wheeled vehicles that cannot use the terrain. Most of the roads have a good tonnage in Finland, Sweden, and Norway. The tonnage enables resupply for the troops, but the traffic is limited due to the volume capacity of the road network.

¹⁰⁵ Tilastokeskus, “Ulkomaalaistaustaiset” (Tilastokeskus), accessed October 5, 2022, <https://www.tilastokeskus.fi/tup/maahanmuutto/maahanmuuttajat-vaestossa/ulkomaalaistaustaiset.html>.

¹⁰⁶ Central Intelligence Agency, “The World Factbook,” accessed October 5, 2022, <https://www.cia.gov/the-world-factbook/>.

¹⁰⁷ Wikipedia, s.v. “Sámi,” Last modified September 21, 2022, <https://en.wikipedia.org/w/index.php?title=S%C3%A1mi&oldid=1111584424>.

¹⁰⁸ Jarmo Huhtanen, “Suomen itäraja piteni yllättäen 20 kilometriä,” *Helsingin Sanomat*, June 6, 2018, <https://www.hs.fi/kotimaa/art-2000005708649.html>.

¹⁰⁹ Google Maps.

¹¹⁰ Google Maps.

F. TRANSPORTATION NETWORK

Transportation networks enable each nation to project force to the High North. Airports are open and sea traffic runs throughout the year providing a possibility for projection of force. More importantly, the forces in the High North can be supported via the railroads. There remains a vulnerability in using the railroads, but the capacity is far exceeding any other means of transport. Thus, the rail network is an easily disrupted lifeline for troops in the time of conflict.

Russia has one railroad connecting the Kola Peninsula to the mainland.¹¹¹ This railroad has a few one-rail side railroads towards the border of Finland, and one from Murmansk towards Norway. Finland's northernmost railroads reach the middle of the High North.¹¹² The railroads in Norway and Sweden are restricted approximately 100 kilometers west of the Finnish border except for one crossing the border to Finland from Sweden.¹¹³ Along with the border crossing points on the roads, there are only four railways that cross the border between Finland and Russia, but none of them are in the High North.¹¹⁴ Russia is heavily reliant on its railroad network in sustaining its forces.¹¹⁵ The sole railroad from the mainland to the Kola Peninsula can be a critical vulnerability in sustaining the forces in the High North.

G. SEASONAL EFFECTS ON MOBILITY

During the wintertime, the ground frost and the freezing of drainage basins, bodies of water, and marshes provide possibility for mounted movement outside the roads. The

¹¹¹ Pavel Kashin and Boris Chomenko, "Railroad Maps," Railroad Maps, accessed August 29, 2022, <http://www-personal.umich.edu/~yopopov/rrt/railroadmaps/>.

¹¹² Väylävirasto, "Valtion Rataverkko 1.1.2021," *Väylävirasto*, 2021, https://vayla.fi/documents/25230764/47264414/Rataverkko_01012021.pdf/2d56780c-9d86-8695-02b5-37031b9e69d8/Rataverkko_01012021.pdf?t=1608032206939.

¹¹³ Trafikverket, "NJDBwebb," accessed November 14, 2022, <https://njdbwebb.trafikverket.se/SeTransportnatverket>; Norway Trains, "Norway Trains Map | Norwegian Railway," accessed November 14, 2022, <http://www.norwaytrains.com/railway-map.html>.

¹¹⁴ Wikipedia, s.v. "Suomen ja Venäjän raja," Last modified April 30, 2022, https://fi.wikipedia.org/w/index.php?title=Suomen_ja_Ven%C3%A4j%C3%A4n_raja&oldid=20454223.

¹¹⁵ Alex Vershinin, "Feeding the Bear: A Closer Look at Russian Army Logistics and the Fait Accompli," War on the Rocks, November 23, 2021, <https://warontherocks.com/2021/11/feeding-the-bear-a-closer-look-at-russian-army-logistics/>.

ground frost can vary between 100 cm in the south to 300 cm in the north.¹¹⁶ The bodies of water that do not have strong currents generally freeze during the winter. The ice depth typically ranges from 30 to 100 cm, with the thickest ice measured being 125 cm on a river and 114 cm on a lake.¹¹⁷ A strong ice of 20 cm can hold a vehicle, but for a main battle tank, the ice depth needs to be greater than 100 cm. 100 cm of ice can hold up to 48 metric tons and 105 cm of ice can hold up to 60 metric tons.¹¹⁸

The temperatures typically stay below freezing during the winter months, with lows down to -50 degrees Celsius. The average range is from 0 to -20 degrees Celsius, affecting equipment and personnel. The depth of snow can vary from zero cm to nearly two meters of snow.¹¹⁹ The visibility is generally good, and in the southern parts it is very good compared to the other seasons of the year. Better visibility is due to the trees losing leaves for the winter. The time of the dark can last from a few days to more than 60 days in the continental areas.¹²⁰ Snow reduces the darkness to some extent, and especially during clear nights and days, the winter provides a possibility for movement in the darkness without lights or night vision equipment.

During the spring, the ground frost and bodies of water start to melt as the weather gets warmer. The rivers flood due to the melting snow and ice.¹²¹ Ice can form natural dams in the rivers, which raises the water level, thus causing even more severe flooding. The melting of the ground frost makes all other but rocky areas of land nearly or totally impassable for mounted movement. Light conditions improve towards the summer solstice.

¹¹⁶ Hilppa Gregow et al., “Lumettoman maan routaolojen mallintaminen ja ennustettavuus muuttuvassa ilmastossa,” 2011, 11.

¹¹⁷ Esko Kuusisto, ed., *Veden Kierto, Hydrologinen Palvelu Suomessa 1908–2008 = The Water Cycle, Hydrological Service in Finland 1908–2008* (Hämeenlinna: Suomen ympäristökeskus, 2008), 53.

¹¹⁸ Ilmatieteen laitos, “Ajoneuvolla jäälle?,” November 1, 2021, <https://www.ilmatieteenlaitos.fi/ajoneuvolla-jaalle>.

¹¹⁹ Ilmatieteen laitos, “Lumiennätyksiä,” accessed July 15, 2022, <https://www.ilmatieteenlaitos.fi/lumiennatyksia>.

¹²⁰ Northern Norway, “The Polar Night Is the Blue Time in Northern Norway,” accessed October 7, 2022, <https://nordnorge.com/en/artikkel/the-polar-night-is-the-blue-time-in-northern-norway/>.

¹²¹ Vesi.fi, “Vesi.Fi-Karttapalvelu,” accessed July 15, 2022, <https://www.vesi.fi/karttapalvelu/?theme=finnhice&teema=jaanpaksuustilanne>.

“White nights” last from a few days to more than 60 days above the Arctic Circle.¹²² Darkness does not set above the 60th latitude at all during the summer months.¹²³ Horizontal visibility gets poorer in the southern regions due to the leaves growing on the trees. The lower vegetation can reach waist height in some parts of the area.

In the early summer, the northern parts are still wet due to the melting ice and snow. The southern parts dry out earlier, and the ground can hold greater tonnage of vehicles. The bodies of water are open and cause natural barriers for movement. The most lakes are in the southern parts and channelize, force movement on the roads. In the north especially there are vast areas of marsh that are practically crossable with very light tracked vehicles or on foot.

The amount of precipitation can vary greatly depending on the year. The months of summer are the rainiest.¹²⁴ The warm summer days dry out most of the rain. During a rainy summer, the fields can flood in the most areas of precipitation and can cause natural barriers for mounted movement in addition to the lakes, rivers, and marshes.

Visibility improves during the autumn. Trees drop their leaves after turning into autumn colors, providing better horizontal visibility. The amount of light gradually reduces towards the winter solstice. The cloudy or rainy days have very poor lighting conditions due to the shorter days. The use of night vision equipment or external lighting is required to conduct movement or tasks that require precision.

It does not rain as much during the autumn compared to the summer,¹²⁵ but the cooler weather and limited sunshine do not evaporate the rainfall from the ground. Rain makes softer terrain impassable for mounted movement before the ground freezes again.

¹²² Asko Palviainen, “Yöttömästä Yöstä - Yliopiston Almanakkatoimisto,” *Asiasta Almanakkaan* (blog), accessed October 7, 2022, <https://almanakka.helsinki.fi/fi/publikationer/blogi/357-yottomasta-yosta.html>.

¹²³ Hannu Karttunen, Ursa, and Tuorlan observatorio, “Hämärän Kesto,” Zubenelgenubi, accessed October 7, 2022, <https://www.astro.utu.fi/zubi/atphenom/twi3.htm>.

¹²⁴ Ilmatieteen laitos, “Kuukausitilastot,” accessed July 15, 2022, <https://www.ilmatieteenlaitos.fi/kuukausitilastot>.

¹²⁵ Ilmatieteen laitos, “Kuukausitilastot.”

The cold nights start to produce fog throughout the season, which can limit visibility, especially near bodies of water.

The Finnish Defence Forces' winter training manual lists multiple factors on the effects of winter on military actions.¹²⁶ The main advantage of winter conditions is snow. A well-trained unit can move faster in typically harder terrain with skis, snowmobiles and tracked vehicles when there is snow. There are many factors that can be both positive and negative for military actions.

- Snow reduces the effect of munitions.
- Approximately a meter of snow reduces the mobility of tanks.
- The transmission of sounds is reduced due to the snow on the trees.
- Tracks on snow make it more difficult to mask one's own actions but makes it easier to detect enemy movements.

Cold weather in the winter affects the physical capabilities of soldiers.¹²⁷ The human body needs time to adjust to the cold. The need for energy and fluids increases in cold weather. The requirements for maintaining the operability of weapons and vehicles are more demanding than in warmer conditions.¹²⁸ They need to be maintained more often and vehicles may need preheating to get them started. The effects of cold need to be understood and prepared for to remain physically and mentally capable for military action.

The High North produces many challenges for large troop formations. Chris Mann and Christer Jörgensen describe Hitler's Arctic war.¹²⁹ Operation Silverfox was the northern part of Operation Barbarossa, with an objective to take Murmansk. The heavy and large German forces gained hardly any success and the Blitzkrieg was stalled quickly with

¹²⁶ Puolustusvoimat, *Talvikoulutusopas (Tkoulo)*, 16.

¹²⁷ Puolustusvoimat, 22–36.

¹²⁸ Puolustusvoimat, 37–41.

¹²⁹ Chris Mann and Christer Jörgensen, *Hitler's Arctic War* (London: Brown Partworks Limited, 2002), 94–97.

heavy losses. Mann and Jørgensen name underestimating the conditions as one of the greatest mistakes of the operation. The German force was easily affected by Soviet artillery. The lack of roads made resupply of forces extremely difficult. Highly trained Mountain Jägers failed to accomplish their objectives in the Arctic conditions due to their poor understanding of the environment and lack of training for it.

H. CONCLUSIONS

The harsh conditions and natural barriers in the High North require a military force capable of sustaining itself and fighting in extreme conditions. Russia's Arctic capabilities have been degraded to some degree in Ukraine, as its Arctic Brigade has endured casualties in the war.¹³⁰ Maneuverability changes dramatically from one season to another. The means of transporting troops requires mobility on the snowy conditions in the winter by light tracked vehicles or snowmobiles. In the summer, the light tracked vehicles are useful due to the marsh areas, but other kinds of movement outside the roads is restricted. This is an advantage to the military force that has better capability for unmounted movement on skis or on foot.

Winter provides the best maneuverability for tracked vehicles. Mann and Jørgensen note that the usage of main battle tanks in the High North is not the most feasible option due to the environmental restraints.¹³¹ However, winter limits littoral movement on the Baltic due to the freezing of the seas, and might have limitations to aerial movement due to icing conditions. All wheeled vehicles are completely restricted to roads except in dry summer conditions. Movement is channelized by bodies of water, marshes, and the level of channelization varies by season. The sparsity of roads and the presence of natural barriers force mounted troops to use the few roads available, and provide few possibilities for forming battle formations. Maintenance and support troops will have long distances to support the troops in battle due to the lack of alternate routes.

¹³⁰ David Axe, "Russia's Reindeer Brigade Is Fighting for Its Survival in Southern Ukraine," *Forbes*, July 10, 2022, <https://www.forbes.com/sites/davidaxe/2022/10/07/russias-reindeer-brigade-is-fighting-for-its-survival-in-southern-ukraine/>.

¹³¹ Mann and Jørgensen, *Hitler's Arctic War*, 212.

The changing seasons bring different challenges for military actions. The changes in the lighting conditions are drastic. The ones with better night operation capability will have the advantage during the darkest times in the autumn. During the summer there is no cover from darkness. The military forces need to be very adaptable to these different conditions. This would favor smaller units over heavy, large units.

The High North is important for Russia and other nations. Any conflict in the High North will highly likely be a part of larger-scale military actions in other areas. Finland and Sweden have not yet been allied but are in close partnership with NATO and currently in the process of acquiring membership in NATO. The case of Russia attacking Finland would be likely to cover its flank in a conflict with NATO. Thus far Russia has not attacked a NATO member, and it seems unlikely in the future due to the fear of escalation to nuclear war. However, the strategic locations in the High North and the proximity of their perceived threat could influence them to take offensive actions.

The homogeneity of demography in each Nordic country and different languages in the countries make it very unlikely for Russia to try to use infiltration tactics like “the green men” in Ukraine. Thus, any military action is likely to be a strong direct attack on Finland or Norway, or a smaller operation with limited objectives. Possible desired outcomes for Russia could include creating a protective buffer zone for its strategic capabilities in the Kola Peninsula or securing a self-sustainable trade route instead of using the Baltic Sea, which is surrounded solely by NATO countries and their partners. These scenarios are discussed in Chapter IV.

Russia’s military manpower is far greater than of the other countries in the High North. They have had false assumptions on how the will of the people matters in warfare in Ukraine and in Finland in 1939 to 1940. The Winter and Continuation Wars against Finland proved only manpower and the amount of equipment are not the only decisive factors, though Soviet masses finally prevailed to some extent. This could be observed in their war in Ukraine as well. Most Russian troops are not in the High North, and this can be a downfall even if they could and would project more force in the region.

The scarcity of transport networks and great distances impose severe demands on any military operation in the High North. The isolation of Kola Peninsula during the winter is a threat to Russia. The sole railroad to the area is of critical importance to Russia. As the Barents Sea freezes, it could be the only viable option to resupply the area. Air transports can provide some help but in the hardest times of snowfall they might not prove to be the best solution.

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IV. IRREGULAR RESPONSE TO A RUSSIAN OFFENSIVE

Conventional armies have always prized the possession of the latest weapons and the swiftest transports and means of communication. But irregulars have realized that the greater reliance of conventional troops on these advanced systems makes them highly vulnerable to disruption.

—John Arquilla¹³²

A. MILITARY BALANCE IN THE HIGH NORTH

The 2022 Military Balance Chart in Figure 3 depicts the security situation in the High North. Russia has by far the largest military force in the High North. Russia’s Arctic Strategic Command contains three brigades and two aviation regiments. The Northern Fleet is a substantial maritime force. The Baltic Fleet could do a flanking movement on the Gulf of Bothnia or support an offensive in the High North, inserting special forces via the Gulf of Bothnia. Gordon McCormick describes how the Soviet Union conducted operations in the Gulf of Bothnia during the Cold War.¹³³ Russia’s strategic nuclear capabilities in the Kola Peninsula¹³⁴ and the peacetime force posture indicates the importance of the High North to Russia. This importance must be noted and influences the bordering countries and alliances commitments to the importance of the area.

¹³² Arquilla, *Insurgents, Raiders, and Bandits*, xiv.

¹³³ Gordon McCormick, “Stranger than Fiction: Soviet Submarine Operations in Swedish Waters” (RAND Corporation, January 1, 1990), <https://www.rand.org/pubs/reports/R3776.html>.

¹³⁴ Espen Berg-Knutson and Nancy C. Roberts, “Strategic Design for NORSOF 2025,” Technical Report (Naval Postgraduate School, July 2015), <https://calhoun.nps.edu/handle/10945/47444>; Woolf, “Russia’s Nuclear Weapons: Doctrine, Forces, and Modernization.”



Figure 3. Military posture in the High North¹³⁵

B. RUSSIAN OFFENSIVE SCENARIOS

1. Offensive in the High North

In a conflict with NATO Russia may conduct an offensive in the High North to gain more buffer space between its strategic capabilities and NATO.¹³⁶ An attack in the High North on Finland or Norway may aim to go deep to gain as much buffer as possible. This approach would be very much like the offensive doctrine describes: deep battle by speed to overwhelm the defending force.¹³⁷ The desired end-state would be to gain a strategic buffer and tie up forces in the High North. This would force NATO to react and reinforce

¹³⁵ Source: The International Institute for Strategic Studies, “The 2022 Military Balance Chart: Arctic Security Dynamics,” *The Military Balance* 122, no. 1 (December 31, 2022): ci–ci, <https://doi.org/10.1080/04597222.2022.2022942>.

¹³⁶ Berg-Knutsen and Roberts, “Strategic Design for NORSO 2025,” 20.

¹³⁷ Grau and Bartels, “The Russian Way of War,” 48.

the High North. For Russia it could release pressure from the main campaign, likely to take place in Central Europe, when NATO repositions its forces.

2. Operational Disposition of Forces to Tie Forces in the High North

In a conflict with NATO in Central Europe, Russia may deploy forces to the High North to tie down NATO and partner forces. This is the same scenario Russia is executing in Belarus to tie down Ukrainian forces.¹³⁸ The repositioning of forces is heavily utilized in the information environment. The repositioning of forces is claimed to open a new operational front aimed at NATO soil. This forces NATO to respond and reinforce its forces in the High North.

C. THE UTILITY OF SPECIAL FORCES IN THE BATTLE SPACE

The battle space in the High North includes the territories of Russia, Finland, Sweden, and Norway. The least optimal solution for the defender against Russian aggression is to remain on its own soil. Expanding the battle space to Russian territory would tie down the latter's forces to maintain security. Thus, the active offensive force may be smaller and the possibility to support the attacking force may be smaller.

Special forces can be used to hamper Russia's lines of supply. In the ongoing war in Ukraine, Chuck de Caro suggests Ukrainian Special Forces should attack deep into Russian infrastructure.¹³⁹ He suggests disrupting the Russian resupply and reinforcement routes on railroads by attacking chokepoints. These chokepoints could be bridges, narrow passes, or intersections. Attacking the railroad network would cause logistical problems for the attacking force, but would also have an information effect. De Caro describes it as being a "propaganda shock that would hit Putin squarely in the groin."¹⁴⁰ The same methods were used in the Continuation War between the Soviet Union and Finland when

¹³⁸ Artyom Shraibman, "What's Behind Russia's New Deployment of Troops to Belarus?," Carnegie Endowment for International Peace, October 25, 2022, <https://carnegieendowment.org/politika/88249>.

¹³⁹ Chuck de Caro, "Ukraine: Think Deep Attacks Against Russian Logistics," *Small Wars Journal*, June 28, 2022, <https://smallwarsjournal.com/jrnl/art/ukraine-think-deep-attacks-against-russian-logistics>.

¹⁴⁰ de Caro.

Finnish forces disrupted enemy railroad traffic on the sole railroad towards Murmansk.¹⁴¹ The risk of this approach is that it might give Russia a reason to escalate the conflict. This risk can be mitigated by engaging only legal military targets.

The personnel targets for special forces need to be carefully chosen for high pay-off. De Caro argues that targeting should prioritize military engineering officers.¹⁴² He bases his argument on the proverb of amateurs thinking tactics while professionals think logistics. There is a limited amount of engineering officers, and their skillsets are hard to replace. In de Caro's opinion, it would be cost effective to decisively reduce their ranks. He claims this would dramatically slow the movement of the attacking force and compel them to secure their lines of communication and resupply. The lines of communication are a vulnerability in Russian deep battle. This can be exploited by the means suggested by de Caro.

Strategic military capabilities in the High North can be high pay-off targets for special forces. Espen Berg-Knutsen and Nancy C. Roberts have used a scenario for the utilization of special forces to target Anti-Air Missile Defense.¹⁴³ Special forces infiltrate by various means into enemy territory. The study suggests it is special forces or special forces supported units only that can infiltrate in the target areas. The infiltration is conducted in small teams that possess the capability to find and fix a target. They have integral capability to engage a target. They could also fix a target for other capabilities in an example for using air-to-ground assets.

The use of special forces in the High North has many possibilities. Engaging targets in the rear of the Russian frontline will degrade its capability to resupply and reinforce the frontline. The proximity of the railroad to Finland is an exploitable vulnerability. The strategic importance of Kola Peninsula will force Russia to concentrate its force to secure

¹⁴¹ Marko Palokangas, "Räjätävää tyhjyyttä: Sissitoiminta suomalaisessa sotataidossa" (Dissertation, Helsinki, National Defense University, 2014), 160.

¹⁴² de Caro, "Ukraine: Think Deep Attacks Against Russian Logistics."

¹⁴³ Berg-Knutsen and Roberts, "Strategic Design for NORSOF 2025," 72–73.

its capabilities and resupply lines. Special forces capabilities can be used in both scenarios of the Russian aggression.

D. IRREGULAR WARFARE IN THE HIGH NORTH

The war in Ukraine has shown irregular warfare is an efficient supported and supporting way to defend against a Russian offensive. John Paul Rathbone, Roman Olearchyk and Henry Foy describe how Ukrainian forces have conducted irregular warfare attacks on Russian forces.¹⁴⁴ They say the small units have been able to defend against the Russian force. These units have also been able to regain lost territory by counterattacks. Sun Tzu emphasizes optimal use of available means.¹⁴⁵ The Ukrainians have found a way to implement this principle in their defense.

The conditions and the environment in the High North are very welcoming for an irregular approach to defense. John Arquilla states irregular warfare can be integrated with a conventional campaign.¹⁴⁶ Small units conducting ambushes and hit-and-run attacks cause distress to the enemy.¹⁴⁷ As Sun Tzu says, “The first way should be the total disruption of the enemy’s intended plans for his future growth and success.”¹⁴⁸ Confusing the attacker by attacking its rear and supply lines can be done with small units that can maneuver independently in the environment. Conventional force tend to be rigid and defense static. The lack of infrastructure and harsh conditions make it very difficult for the attacker to cover all its flanks and secure its lines of communication. One example of combined conventional and irregular warfare tactics would be Motti tactics.

¹⁴⁴ John Paul Rathbone, Roman Olearchyk, and Henry Foy, “Military Briefing: Ukraine Uses Guerrilla Counter-Attacks to Take Fight to Russia,” *Financial Times*, March 31, 2022, <https://www.ft.com/content/9e3f0736-d60d-4627-95fa-ced2aa422a82>.

¹⁴⁵ Sun Tzu, *The Art of War: The Definitive Interpretation of Sun Tzu’s Classic Book of Strategy for the Martial Artist*, ed. Steve Kaufman, 1st ed (Boston: C.E. Tuttle, 1996), 31.

¹⁴⁶ Arquilla, *Insurgents, Raiders, and Bandits*, 12.

¹⁴⁷ Arquilla, 3.

¹⁴⁸ Sun Tzu, *The Art of War*, 24.

Pasi Tuunainen describes Motti tactics as being the “poor man’s tactics” to compensate for the difference in manpower.¹⁴⁹ The word originally means a pile of logs and came to mean “to encircle.” The military use of the word originates from the IV Army Corps in January 1940. They used Motti as a metaphor for surrounding Soviet units. The invention of the tactic was based on the assessment of comparative strengths and weaknesses. In the case of Motti, the inferior military unit would use their strengths against the weaknesses of the much larger enemy with much more capabilities. Motti tactics helped the Finns to “chew up” a large enemy in smaller pieces. The principle of the tactics was to avoid having one’s own troops fight the enemy force in their strongest attacking formation, but instead engaging the rear and flanks of the attacking force.¹⁵⁰ The tactics proved very successful by causing heavy losses to the Soviets and minimal losses for the Finns.¹⁵¹

The Motti tactics can be seen as an implementation of some of Carl von Clausewitz’s principles of war.¹⁵² The tactics aimed to attack the flanks of the enemy and surprise it. The main point of attack was the supporting units that caused the enemy to stop advancing. Another principle was the use of terrain to be able to surprise the enemy.¹⁵³ William Trotter’s description of the use of Motti explains the effectiveness of the tactics.¹⁵⁴ Though they were not able to completely wipe out a whole Soviet Division, the Finns were able to wipe out most of them. The amount of captured material from the Soviets was substantial.

An application of Motti tactics is still a useful way to fight an enemy with superior manpower today. The Russian offensive doctrine leaves the flanks of the forces

¹⁴⁹ Pasi Tuunainen, “Motti Tactics in Finnish Military Historiography since World War II,” *International Bibliography of Military History* 33 (January 1, 2013): 146, <https://doi.org/10.1163/22115757-03302003>.

¹⁵⁰ Tuunainen, 146.

¹⁵¹ Tuunainen, 146.

¹⁵² Carl von Clausewitz, *On War*, 7th ed., vol. III (London: Routledge & Kegan Paul LTD, 1962), 190–94.

¹⁵³ Clausewitz, III:200.

¹⁵⁴ William R. Trotter, *A Frozen Hell: The Russo-Finnish Winter War of 1939–1940* (Chapel Hill, N.C: Algonquin Books of Chapel Hill, 1991), 131–40.

vulnerable,¹⁵⁵ especially when it comes to road-bound combat service support. As the distances are long and the road networks are scarce, this provides a good possibility for the defending force to not engage the hard front of the attacking force. A conventional defense is vulnerable against a strong attacking force, and Motti tactics could provide a cost-effective alternative. The use of small aerial reconnaissance capabilities, such as drones, has changed the requirements for concealing movement. Small units can avoid the detection by drones much better in flanking movements compared to larger ones.

E. MILITARY INDUSTRY AND ORGANIZATIONAL CONSIDERATIONS

The Nordic countries and their allies have access to high technology. All the Nordic countries produce high technology products for civilian and military use. Saab produces high technology airplanes and other warfare material, and Kongsberg produces high technology systems for military use, as an example. Good trading relations with the United States have made it possible for the Nordic countries to buy F-35s and precision strike capabilities.

Alex Vershinin claims the war in Ukraine has proven there is a need for the massive capability to produce weaponry.¹⁵⁶ This capability needs to be very advanced in the technology used. He points out the forecasts used to calculate consumption of ammunition have widely exceeded the forecasts by the United States. This can partly be explained by the Russian doctrine for the massive use of indirect fires.¹⁵⁷ The partial embargo has already proven Russia to be reliant on Western technology for its weapon systems. The main deficiency of Russia is the lack of its own capability to produce high technology.

Russia has difficulties in its force structure and manpower. Michael Kofman and Rob Lee say, “Militaries have ideas about what kind of wars they’re likely to fight, how

¹⁵⁵ Vigor, *Soviet Blitzkrieg Theory*, 198.

¹⁵⁶ Alex Vershinin, “The Return of Industrial Warfare,” *The Royal United Services Institute*, June 17, 2022, <https://rusi.org/explore-our-research/publications/commentary/return-industrial-warfare>.

¹⁵⁷ Boston and Massicot, “The Russian Way of Warfare.”

they plan to fight them, and the best way to balance capability, capacity, and readiness.”¹⁵⁸ They argue Russia’s machine of war is not up to date on its force structure and manpower. The attempt to have a partial-mobilized force has not been successful in Ukraine. The Battalion Tactical Groups have lacked infantry to be able to dismount and clear areas. Kofman and Lee claim Russia’s military thinking on how to organize its force to fight NATO has been flawed. The reforms have showed the change is not easy and fast. The issues in the force structure, in Kofman and Lee’s opinion, is that Russia has less logistical capacity, and it concentrates on the indirect fires and support for enabling capabilities. They claim that over time, manpower and materiel have a strong influence when the conflict is prolonged. The lack of infantry is a detrimental deficiency in the High North. There is no capability to secure flanks without infantry.

The Nordic countries have an independent high technology capability to produce materials for military use. Their close partnerships and alliances provide a continuation of getting new high technology materials from other countries. Russia’s own capability to produce new high technology material has been degraded.¹⁵⁹ Systematic corruption and the partial embargo have left Russia without the newest technology. This is to the advantage of the Nordic countries.

F. CONCLUSIONS

An irregular approach supported by conventional forces is an effective way to defeat Russian aggression in the High North. Irregular warfare capabilities are useful in both scenarios of Russian aggression. Conventional defense can stop the advance of the attacking force, but it will not end the conflict on profitable terms to the defending nation. Russia can claim to attach the gained areas to its territory, as has happened in Ukraine. Thus, the need to have effects on Russian side of the border is obvious.

¹⁵⁸ Michael Kofman and Rob Lee, “Not Built for Purpose: The Russian Military’s Ill-Fated Force Design,” War on the Rocks, June 2, 2022, <https://warontherocks.com/2022/06/not-built-for-purpose-the-russian-militarys-ill-fated-force-design/>.

¹⁵⁹ United States Department of State, “The Impact of Sanctions and Export Controls on the Russian Federation,” October 20, 2022, <https://www.state.gov/the-impact-of-sanctions-and-export-controls-on-the-russian-federation/>.

NATO or any Nordic country will very unlikely start a conflict. Thus, the initiative on starting a conflict is on Russia. Active defense can be arranged without starting a conflict. Preparing the defensive positions and where to utilize different conventional or irregular warfare tactics can be planned and rehearsed in advance. The use of military geographical factors to the defender's advantage provides a possibility to cut the resupply routes of the attacking force. Using their knowledge of the features of the terrain enables the defender to use Motti tactics and defeat the attacking force.

Special forces can attack the choke points on the Russian scarce transportation networks in the High North. This will diminish the Russian ability to project more power in the High North. It will also degrade its capability to resupply the attacking forces. This takes pressure off the defending forces and provides them an advantage in conducting active defensive measures. Flanking the resupplying troops will further degrade the advance of the attacking forces.

The strategic importance of the Kola Peninsula for Russia will force it to reinforce the security in the area. Attacking the choke points in transportation and strategic targets in the Kola Peninsula will have an important information environment effect: the fear of the opponent and the fear of losing important assets. It will also undermine the Russian information environment messaging about being superior in warpower.

The conventional forces can then push the attacking Russian forces back with a counterattack. The optimal conditions for successful counterattack will be provided by special forces' activities deep in the Russian soil and active defensive measures, like flanking and encircling movements using Motti tactics. Surprise and maintaining the initiative after an initial attack by Russia are the keys to success.

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V. CONCLUSIONS

A. KEY FINDINGS

Changing climate raises the importance of the High North. The importance of the area for Russia highlights the importance for other nations as well. The strategic capabilities the Russian Federation possesses for Arctic operations are a clear indication of its view that the High North is an important area. In the event of war, the Nordic countries must be prepared for Russia, vigorously maintaining their capabilities and sustaining their interests. The pending admission of Finland and Sweden to NATO will further increase the importance of the High North. In this case the Baltic Sea has the potential to become a “NATO lake” and the importance of the ports of Kola Peninsula will increase for Russia.

A possible escalation of the war in Ukraine or a later conflict in Central Europe between Russia and NATO demands an economy of force on the parts of both Russia and NATO. Going into a war on two fronts requires major resources. The High North will likely be away from the main theater of war, though Russia will most likely attempt to exploit its capabilities there. Instead of opening two full-scale fronts, the economy of force needs to be considered. The more open area of Central Europe will require much of Russia’s troops. The High North will likely not be significantly reinforced at the expense of the Central European theatre.

The aim of the thesis has been to answer the question: “How can we best deter or counter a Russian offensive by the means of irregular warfare supported by conventional capabilities in the High North?” Irregular warfare provides a very efficient approach to countering a Russian offensive. Small units can maneuver undetected in the High North and can be expected to have great effects on the attacking force. The environment in the High North is optimal for irregular warfare. Any pure conventional approach would likely stop the advance of the offensive but would be unlikely to shape the battlefield for a successful NATO counterattack.

Russian offensive doctrine is best defeated by irregular defense. Static defenses can stop the advance but are very vulnerable to the massed use of fires, which are emphasized

in Russian doctrine. But the Russians' open flanks and long lines of supply—which are likely to arise during their offensive—form favorable conditions for small unit attacks. The use of smart munitions against high-payoff military targets will force Russia to secure its rear and further decrease its capability to secure its flanks.

Small, maneuverable units are harder to detect in the High North. Drones have become a useful tool for strikes and intelligence but also force protection. A large force conducting a flanking movement would be easily detected by drones and could be engaged by either indirect fires from the ground or by close air support. A small unit is less vulnerable to Russian fires from ground and air. Thus, the doctrinal use of massed fires will have less of an effect on irregular warfare troops than on conventional formations and defensive positions.

Irregular warfare is effective also in the case of Russia choosing an irregular approach. Conventional forces are as vulnerable for either the attacker or defender if the other side is using irregular warfare. Thus, rigid conventional defense formations are not an optimal solution. Small units can be used to counter Russian irregular warfare units more effectively than large conventional formations of troops.

Smaller units for irregular warfare need less logistics. Their operations can be supported either by pushing resupply forward or having resupply points where they can go to resupply themselves. Successful operating conditions could be made possible by not having static troops or constant resupply traffic. The decreased amount of resupply traffic also decreases the risk of Russian irregular forces disrupting the logistics of the defenders.

B. RECOMMENDATIONS FOR FUTURE RESEARCH

This research has affirmed the utility and value of irregular warfare in the High North. There are aspects that need future research to best support irregular warfare in the High North. The requirements for logistics, manpower and training need to be explored. Further research on the utility of the suggested irregular approach in other geographical areas is also needed. Some of these tactics and techniques are currently being used in the conflict in the Ukraine. Further research could analyze the use of irregular tactics as applied in other theaters of operations, on a broader scale.

This research recommends an irregular approach supported by conventional forces. The consideration for common situational and operational awareness needs to be addressed to successfully conduct operations. There is a need for future study of the requirements for command and control to successfully conduct irregular warfare supported by conventional forces. Future research should include possible changes to conventional military organizations to best support irregular warfare in the High North. Traditional siloed organizations (such as the army, navy and air force) and their subordinate units may not be the most effective structures. A possible demand for joint forces should be considered in future research.

Russian offensive doctrine assumes that there will be effective close air support for the attacking troops. But the Russians' lack of air superiority and limited use of close air support in Ukraine suggests that Russian doctrine and capability are no longer well-aligned, given the increasing effectiveness of ground-based anti-air weapons. Nevertheless, future research is needed to explore whether the lack of close air support for Russian forces in Ukraine has been due to lack of capability or capacity, either of which could have a great impact on planning counter-air operations and training the ground troops. Another question to explore is whether the Russians have been saving some of their air force capability for potential escalation, or if there has been a false assumption/over-estimation of their aerial capabilities.

C. VALIDITY OF THE RESEARCH

The chosen heuristic method of analyzing the High North and the utility of irregular warfare has guided this research on multiple different paths to find as much relevant information as possible. Understanding the threat and the environment are vital to analyzing possible responses to an offensive. The method has helped the research to have a broad perspective on the High North instead of concentrating on individual nations.

The sources used here are published studies in Russian doctrine, irregular warfare, and history. The lack of current studies in Russian offensive doctrine is a noted deficiency. The supportive evidence has been built from earlier, Soviet-era doctrinal studies. However, there has not been any information during the research that would argue against the

evidence presented on Russian doctrine. Environmental information was researched from multiple databases, multinational agencies, and news sources.

The possible change in the security policies of Finland and Sweden is noted in the research by looking at irregular warfare generally instead of by viewing individual national capabilities. The possible change in the security environment supports deterrence. An irregular warfare approach to a conflict between Russia and NATO in the High North is still valid.

This research has been conducted during the time of active fighting in Ukraine, and some data and information have been drawn from doctrines employed in and observations of that conflict. There is a possibility that Russia will change its doctrine, although historically it has remained very similar for many decades. The losses of personnel and material in the war in Ukraine will take some years to be replaced, which might encourage a change of doctrine. There is no doubt that Russia will learn its own lessons. NATO and its friends will draw lessons too, one being that irregular warfare is a useful approach for deterring or countering Russian aggression.

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