Vulnerabilities and Hybrid Threats in the North American Arctic

DR. GAËLLE RIVARD PICHÉ

Abstract

The North American Arctic presents unique geographical, social, political, economic, and military conditions that constitute significant drivers of vulnerability. This article examines key vulnerabilities in Alaska and the Canadian Arctic and how they interact, providing opportunities for China and Russia to advance their interests in the region at the expense of Canada and the United States. Hybrid threats tend to manifest at the gaps and seams of those vulnerabilities, undermining both Arctic security and North American strategic interests. Resilience is the greatest defense against hybrid threats and is best achieved upstream through a whole-of-society approach to eliminate or mitigate vulnerabilities before they can be targeted, or to reduce potential harm resulting from their exploitation.

The North American Arctic has traditionally received little attention from national security and defense circles in Washington, DC, and Ottawa due to its inaccessibility, austerity, and remoteness.1 Conversations on homeland defense have tended to focus on conventional and strategic threats passing through the Arctic.2 However, as the region becomes more accessible due to climate change, a growing number of countries are showing interest in the region, its resources, and sea routes. China, especially, has shown keen interest in the North American Arctic. In 2023, two Chinese high-altitude balloons flying over North America were shot down by US fighter jets—one over Yukon and the other off the coast of North Carolina in the Atlantic Ocean. These incidents attracted substantial public attention and raised concerns for national security and continental defense in Canada and the United States.

1 The North American Arctic is defined here as comprising Alaska’s and Canada’s Arctic and northern regions. The latter includes Yukon, the Northwest Territories, and Nunavut, as well as portions of northern Quebec and Labrador that are part of the homeland of Inuit peoples, Inuit Nunangat.

2 On distinguishing threats in, to and through the Arctic, see P. Whitney Lackenbauer, “Threats Through, To, and In the Arctic: A Framework for Analysis,” NAADSN Policy Brief, 23 March 2021, https://www.naadsn.ca/.
While US conventional and strategic deterrence continues to hold, North America is no longer the geographic sanctuary it once was. Thanks to technology advancements and the emergence of new domains such as cyber and information, adversaries—especially China and Russia—are finding alternative ways to undermine Canadian and American interests without engaging in direct confrontation. These hybrid threats combine military and non-military means to advance the adversary’s strategic goals at the expense of both nations.3

Despite the evident risks, the national defense community continues to overlook hybrid threats to North America and the North American Arctic. To better understand how hybrid threats can manifest in the North American Arctic and undermine homeland defense, it is crucial to first recognize how unique geographical, economic, social, and political conditions constitute important drivers of vulnerability in the region. Accordingly, this article examines vulnerabilities across the North American Arctic and how adversaries might leverage them to undermine the defense of Canada and the United States. It concludes by discussing the critical importance of resilience to counter hybrid threats in the North American Arctic.

Understanding Vulnerabilities

Vulnerabilities are usually understood as factors that increase susceptibility to harm. Canada and the United States are most exposed in the Arctic due to the range of vulnerabilities the region experiences and how those vulnerabilities interact and overlap.4 From a military perspective, significant vulnerabilities for national and continental defense arise from gaps in situational awareness, limited military infrastructure, and lack of government presence across the North American Arctic.5 Non-military factors such as socioeconomic discrepancies, inadequate critical infrastructure, and complex mechanisms governing land and resources, further leave the region vulnerable to hostile actions. The region’s challenging geography and climate, along with the rapid and profound effects of climate change, only compound those vulnerabilities.

---

3 For a definition of hybrid threats, see “Hybrid threats as a concept,” The European Centre of Excellence for Countering Hybrid Threats, n.d., https://www.hybridcoe.fi/.
4 Gaëlle Rivard Piché and Bradley Sylvestre, Vulnerabilities and Hybrid Threats in the Canadian Arctic: Resilience as Defence (Helsinki: The European Centre of Excellence for Countering Hybrid Threats, May 2023), https://www.hybridcoe.fi/.
5 Rivard Piché and Sylvestre, Vulnerabilities and Hybrid Threats in the Canadian Arctic, 7.
Socioeconomic Disparities

Indigenous peoples across Northern Canada and Alaska experience significant socioeconomic disparities in comparison to the rest of the region’s inhabitants and the general Canadian and US populations. In Canada, Inuit contend with higher infant mortality rates. In Alaska, Native populations face increased risk of cardiovascular disease, homicide, alcoholism, and domestic violence. Indigenous peoples across the region are more at risk of committing suicide, with Inuit populations experiencing some of the highest rates in the world.

Indigenous populations are also more likely to experiencing economic hardship. In Canada, the median gross income for Inuit individuals is 75 percent lower than for non-Indigenous peoples living in Inuit Nunangat. The growth of the formal wage economy, coupled with the effects of climate change, is transforming traditional ways of life, at times hindering subsistence and nonwage-based activities. In Alaska, despite being one of the wealthiest states per capita in the United States, a quarter of Native Alaskans live below the poverty threshold.

Of notable importance are the disparities between Alaskan Natives living in urban and rural settings; rural Native communities often lack access to public services, critical infrastructure, and tangible economic opportunities. These inequalities feed long-standing grievances among Indigenous peoples and erode trust and legitimacy in their dealings with provincial, state, and federal governments.

---


11 Berman, “Resource rents, universal basic income.”
Sparse Critical Infrastructure

Critical infrastructure encompasses the array of “processes, systems, facilities, technologies, networks, assets and services essential to the health, safety, security or economic well-being of [a country’s population] and the effective functioning of government.”\(^\text{12}\) Compared to the rest of the continent, critical infrastructure is sorely lacking across the North American Arctic, where it is also more prone to environmental stress and damage. Lack of redundancy, maintenance issues, and the impact of climate change on the permafrost and ice exacerbates this challenge, jeopardizing the safety and wellbeing of local populations and impeding resilience when facing disasters and emergencies.

For example, the lack of roads and the difficulty of maintaining existing ones year after year as the permafrost shifts limits access to isolated communities, a situation exacerbated during times of crisis. In Iqaluit, the largest population center in Nunavut, deficient access to potable water required the deployment of the Canadian Armed Forces in 2022.\(^\text{13}\) Furthermore, limited telecommunications and access to the internet across the region creates challenges for local populations, as well as government and military operations.\(^\text{14}\) The progressive installation of sub-sea optical cables across the region is increasing internet access, but recent incidents highlight the need for redundancy through satellite-based service.\(^\text{15}\)

In Alaska, where the energy sector generates 80 percent of the state government’s revenues, the thawing of the permafrost raises serious safety concerns over the durability of the Trans-Alaska pipeline and related infrastructure.\(^\text{16}\) Any incident would disproportionately impact Native communities and their land, a situation that would also be exacerbated by limited disaster response and search and rescue resources inhibited by subpar roads and rail systems.

\(^{13}\) Kaylia Little, “Iqaluit’s water crisis highlights deeper issues with Arctic infrastructure,” Arctic Institute, 2 May 2022, https://www.thearcticinstitute.org/.
Land and Resources Governance

The region presents a complex governance landscape due to the presence of multiple actors with different interests, goals, and authorities. Relationships among those actors are at times conflicting and contentious, a situation that often finds its roots in long-standing colonial legacies. Land and resource ownership and management, in particular, are central governance issues across the region.

In Canada, the reconciliation process between the federal government and Indigenous peoples has led to the establishment of unique governance arrangements that are key to resources management and development. In Alaska, the 1971 Alaska Native Claims Settlement Act facilitated the transfer of land to Alaska Native corporations, granting them freehold land and subsurface resources rights.

Nonetheless, these arrangements are imperfect, and tensions occasionally arise. At times, federal entities have disregarded established arrangements in favor of pro-development interests. For example, Alaskan tribes have expressed serious concerns over the potential rollback of protections over federally managed land, which could pave the way to resource extraction and exploitation on land Alaskan Natives consider part of their traditional landscape. Such action could also significantly alter already fragile ecosystems.

Projects like the Willow oil development on the North Slope have received mixed support from Native Alaskans and face legal challenges. On the one hand, some

---

groups welcome projects that promise to generate important economic benefits for local communities and alleviate reliance on state and federal funding. On the other hand, other groups living closer to mines or oil installations fear the environmental and health impacts on their communities. Similar dynamics exist in Canada as exemplified by the protracted dispute in the expansion of the Mary River mine on Baffin Island.25 Here, different groups have battled for influence through different governance and review mechanisms, with questions of Indigenous representation and legitimacy at the heart of the saga.

Socioeconomic disparities, insufficient critical infrastructure, and complex land and resource management systems are but a few examples of conditions that leave the North American Arctic vulnerable to hybrid threats. Vulnerabilities can interact in ways that exacerbate them further, and potentially create gaps and wedge issues that can be exploited by hostile actors to ultimately undermine homeland defense.

**Vulnerabilities and Hybrid Threats**

One of the biggest challenges associated with hybrid and subthreshold threats is the fact that they are not always detectable and often offer plausible deniability to their sponsor. Overt, legal activity can enable concurrent or future nefarious action. Even when hostile activity is detected on North American soil, it can be difficult to assess its extent, intent, and impact on homeland defense. Actions taking place in or targeting the Arctic can also have consequences outside the region, undermining public trust, sowing disagreements and resentment between northerners and southerners, or influencing public debate and agenda-setting through disinformation campaigns.

While the threat posed by China and Russia to—rather than through—the North American Arctic should not be overstated, both states have demonstrated their ability to exploit gaps and seams in the North American Arctic to undermine Canadian and US interests, and potentially homeland defense. Yet, it is important to not conflate Russian and Chinese posture and interests in the region. Russia is the biggest Arctic state, by both in terms of population and territory, and thus holds sovereign rights in the Arctic, while China is battling for influence and access.

**China**

China’s interest in the circumpolar Arctic is growing, but its current presence and influence remains fairly limited.26 Beijing’s primary focus revolves around issues closer

---

25 Rivard Piché and Sylvestre, *Vulnerabilities and Hybrid Threats in the Canadian Arctic*.
26 A 2022 RAND report finds that “Chinese investments and presence in the North American sections of the Arctic remain fairly limited.” Stephanie Pezard et al., *China's Strategy and Activities*
to its homeland, including Taiwan and the South China Sea. Nonetheless, the circum-polar North is now an arena for competition among major powers, and the North American Arctic is no exception. China requires access to the region for geostrategic and economic reasons but does not hold territory above the Arctic circle, contrary to the United States and Russia. So far, Beijing has banked on scientific and economic activity to underpin its influence in the Arctic. Yet, under the principle of civil-military fusion, Chinese civilian activity, technology, and infrastructure can be leveraged for military purposes. This permeability between the civilian and military spheres contributes to China’s rapid military development and raises serious concerns in the North American Arctic where needs for economic development, critical infrastructure, and financial influx are pressing and can be exploited by Beijing.

China frames its scientific expeditions in the Arctic as efforts to better understand climate change, support sustainable resource development, and chart commercial sea routes. In recent years, the Xue Long II icebreaker has crossed the Northwest Passage and conducted research expeditions in the Beaufort Sea and the Canadian Arctic Archipelago. Chinese monitoring buoys have also been retrieved in Canadian Arctic waters. These scientific expeditions and devices can help better understand sea ice patterns, underwater acoustics, and the Arctic seabed. Such research holds significant implications for underwater operations and maritime capabilities development, potentially paving the way to the deployment of Chinese nuclear submarines to the Arctic or technology capable of monitoring US submarines in the Arctic and the Northern Pacific oceans.

*Rivard Piché*


29 David Fraser, “Canadian military says it has tracked, stopped China surveillance in Arctic waters,” *CBC*, 22 February 2023, https://www.cbc.ca/.


Furthermore, under the Belt and Road Initiative (BRI), China is developing infrastructure that includes satellite receiver stations, offshore platforms, cables, pipelines, and deep-water seaports across the circumpolar Arctic. Those projects could enable future military activities. While Beijing initially envisioned the Polar Silk Road as part of the BRI, Russia is the only Arctic state to have joined the initiative, while other Arctic states have worked to limit Chinese investments. Nonetheless, Chinese companies continue to show keen interest in investing in the mining, energy, and infrastructure sectors across the region.

On its Canadian website, Huawei capitalizes on critical internet and telecommunications gaps experienced by northern communities and their fraught relationship with Ottawa to promote its services and technology. Chinese firms have also attempted to acquire a gold mine and a hangar near NORAD installations in Nunavut. Ottawa blocked both transactions on national security grounds.

China has faced repeated accusations of employing “cooperative state-to-state, multilateral, and environmental narratives to disguise aggressive and assertive ambitions.” A recent report by the firm Mandiant shed light on China’s intention in the rare earth mining sector, with potentially serious implications for resources development in the Arctic. In 2022, Mandiant uncovered an ongoing pro-China covert influence campaign targeting rare earth mining companies, offering concerning insights into China’s ability to leverage cyber means to advance its economic and geostrategic interests at the expense of the United States and Canada. Dubbed “Operation Dragonbridge,” the campaign aimed to derail new rare earth mining projects by inciting local public opposition through social media, targeting prospective sites

---


32 “We also believe that every Canadian deserves access to a fast, reliable network, no matter which part of Canada they call home. Huawei Canada is proud to help our partners connect those living in rural and remote communities, bringing people together from coast to coast to coast.” Huawei, “Connecting Canada’s North,” 2024, https://www.huawei.com/.


and associated companies in Texas and Northern Saskatchewan. Similar tactics could be used to thwart the exploration and exploitation of important critical mineral deposits in the Arctic, where prohibitive operating costs, lack of infrastructure, and complex regulations already pose significant challenges. China currently dominates the global rare earth mining and processing sector that is key to technology and military advancement. Activities such as Dragonbridge seek to undermine Canadian and US efforts to reduce their dependency on Chinese rare earth materials supplies and expertise.

Growing Chinese tourism in the Arctic also raises concerns. In a recent incident in Alaska, Chinese nationals were arrested for trying to access military facilities while carrying a drone in their vehicle. Ultimately, China’s actions in and outside the North American Arctic point to Beijing’s willingness to employ coercive means and deception in the pursuit of its economic and strategic goals. While the threat China poses to the North American Arctic remains manageable for the time being, the PRC is the pacing challenge to homeland defense in the long term. Measures should be taken to deter and counter China’s growing influence and nefarious activities in the region while they remain within manageable bounds.

**Russia**

In the short term, Russia poses the most pressing conventional and strategic threat to homeland defense through the circumpolar Arctic. However, Moscow is less likely to employ hybrid means and tactics to target the North American Arctic. In contrast, in the European High North, Russia has demonstrated its ability and willingness to use hybrid means to advance its interests both within and outside the region. These hybrid threats include cyberattacks, sabotage of undersea cables, and using migrants to overwhelm Finland’s border security services.

---

36 “Pro-PRC DRAGONBRIDGE Influence Campaign.”
There are few publicly available examples of Russia successfully targeting the Canadian North and Alaska. Nonetheless, Russia could leverage Arctic vulnerabilities through cyber operations and disinformation campaigns to undermine the credibility and legitimacy of government entities and decisionmakers in Ottawa and Washington. Already, in 2017, Russian media misrepresented a statement by an Alaskan state official, implying that “Alaska would be better off under Russian leadership.” Furthermore, in an escalatory scenario leading to a conventional or strategic attack on North America, Moscow could target northern military and civilian infrastructure through cyberattacks to undermine northern warning and defense systems.

For now, Russia has little interest in meddling in North American Arctic affairs. Russian hybrid threats in the European High North should be understood in the context of the war in Ukraine, the accession of Finland and Sweden to the North Atlantic Treaty Organization, and the critical importance for Moscow of maintaining its maritime access to the North Atlantic for global naval projection through its bastion defense. When it comes to the circumpolar north, it is still in Russia’s interest to abide by international rules and norms given its Arctic status.

**Resilience against Hybrid Threats**

While some experts argue that the Arctic is less vulnerable to undue foreign influence than other regions in the world, the examples detailed above illustrate how strategic competition has now reached the North American Arctic. China, and to a lesser extent Russia, are trying to advance their interests in the region at the expense of Canada and the United States. Resilience is the best defense against hybrid threats. Identifying vulnerabilities across the North American Arctic and addressing them early on can deter adversaries from targeting these vulnerabilities in the first place, and bolster Canadian and US capacity to mitigate and withstand the adversarial effects of hybrid threats once they manifest.

---


41 “The Arctic presents strong factors of resilience that make it unlikely that Chinese investments in infrastructure could present the negative security, political, economic, social, and environmental outcomes that other regions of the world have experienced.” Stephanie Pezard et al., *China’s Strategy and Activities in the Arctic*, vi.
Defense against hybrid threats should focus primarily on addressing vulnerabilities at their source whenever possible. Investments in critical infrastructure, with a focus on emphasizing service provision and ensuring the safety and security of Arctic communities, and initiatives promoting sustainable socioeconomic development led by northern communities and Indigenous peoples in collaboration with all levels of government are paramount. Moreover, fostering dialogue around security risk pertaining to economic security, social cohesion, and democracy should be central to any strategy to safeguard the North American Arctic.

To that end, the government of Yukon announced in January 2024 the creation of an Arctic Security Advisory Council to “study risks across the Yukon security landscape, determine what assets and infrastructure require additional protection and identify opportunities for the Government of Yukon to work with the Government of Canada to enhance security across the territory.” This initiative will hopefully increase transparency, promote dialogue, and enhance security literacy among Yukon stakeholders, ultimately leading to more informed decision making that safeguards both homeland defense and the safety and security of Yukon residents. Finally, valuable insights can be drawn from the Norwegian concept of total defense, which emphasizes the pivotal role of individuals and communities in defending their country. Defense against hybrid threats does not start nor end with military forces.

Dr. Gaëlle Rivard Piché
Dr. Rivard Piché is a strategic analyst with Defence Research and Development Canada. Since joining DRDC in 2016, she worked closely with the Royal Canadian Navy and the Canadian Special Operations Forces Command. In Fall 2024, she will join the North American Aerospace Defense Command in Colorado Springs. She co-authored two books on Arctic security and defence, and her research has been published in the Texas National Security Review, Canadian Foreign Policy Journal, International Journal, and Études internationales. She is a senior fellow with the Canadian Defence Associations Institute, an affiliated expert with the European Center of Excellence for Countering Hybrid Threats, and a former Fulbright research fellow in the International Security Program at the Harvard Kennedy School’s Belfer Center for Science and International Affairs. The views expressed in this article are the author’s own and do not represent DRDC, the Department of National Defence, Canadian Armed Forces, or the Government of Canada.


Disclaimer
The views and opinions expressed or implied in JIPA are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, Department of the Air Force, Air Education and Training Command, Air University, or other agencies or departments of the US government or their international equivalents.