

# Cavalry Operations in Arctic Conditions

by 1LT Tristan Meadows

The U.S. Army has now conducted two Arctic training-center rotations in the Alaskan interior. The 1<sup>st</sup> Brigade, 25<sup>th</sup> Infantry Division – now 1<sup>st</sup> Brigade, 11<sup>th</sup> Airborne Division (Arctic) – completed its rotation as the rotational training unit (RTU) in March 2022 at Donnelly Training Area (DTA), and 2<sup>nd</sup> Brigade, 11<sup>th</sup> Airborne Division (Arctic), recently completed its rotation in April 2023 between Fort Wainwright and the Yukon Training Area (YTA).

Both Cavalry squadrons in these rotations failed to succeed in reconnaissance and security (R&S) operations due to the unique Arctic operating environment, insufficient mobility capabilities and the inability to sustain operations in extreme cold weather. A successful Arctic Cavalry squadron is reinforced with off-road mobility platforms of snow machines or Cold-Weather All-Terrain Vehicles (CATV), able to conduct dismounted

operations. The squadron can leverage tactical-satellite (TACSAT) and high-frequency (HF) communications at all echelons.

The 5-1 Cavalry served as the Cavalry squadron for 1-25 Stryker Brigade Combat Team (SBCT) during Joint Pacific Multinational Readiness Center (JPMRC) Rotation 22-02. The 5-1 Cav was the first unit from the brigade in the box and executed a 100-mile tactical road march along Richardson Highway from Fort Wainwright to DTA. The unit deployed with 68 Strykers, split among three mounted Cavalry troops, one weapons troop, one forward-support troop (FST) and the headquarters and headquarters troop (HHT).

The 1-40 Cav served as the Cavalry squadron for 2/11 Infantry Brigade Combat Team (IBCT) (A) during JPMRC 23-02. It deployed with two airborne jumps on Fort Wainwright and YTA while its mounted organizations

executed a 350-mile tactical road march along Parks Highway from Fort Richardson to YTA. It deployed with two mounted Cavalry troops, one dismounted Cavalry troop, one FST and the HHT.

## Arctic operating environment

The Arctic operating environment places unique challenges on Soldiers and their equipment that the Army has been ill-prepared for since Alaskan units have not conducted large-scale operations in recent history. Temperatures can vary in the summer to above 90 degrees and in the winter to -30 to -50 degrees Fahrenheit. These extreme temperatures have noticeable impacts on Soldiers but also affects equipment, such as causing vehicle or night-vision goggles batteries to freeze.

The daylight times also vary between seasons with 24 hours of daylight in the summertime to two or less hours in the winter. The snowfall exceeds four feet every winter and confines wheeled vehicles to plowed roads. Finally, much of the area is covered in muskeg, a combination of swamp and thick low-lying vegetation, which limits visibility, mobility and line-of-sight radio communications.

To operate in these challenges, Soldiers have learned how to adapt through years of trial and error. To combat the temperatures, Soldiers are issued the Extreme Cold-Weather Clothing System or the new, experimental Cold-Temperature Arctic Protection System (CTAPS). This clothing, although efficient, can easily cause a Soldier's carried load to exceed 50 pounds before adding ammunition, food or squad equipment.

Soldiers need to carefully manage their water since – if left in the cold – it can freeze in as little as four hours. Soldiers rely on body heat or external heat sources to constantly warm water for drinking.

The limited daylight in the winter



**[Figure 1. A standard Arctic packing list for a Soldier in December 2022. (Photo by 1LT Tristan Meadows)]**

places more load on the Soldier by requiring excess batteries to operate night-vision equipment. The batteries are prone to freezing, and common methods to keep them warm involve body heat under a Soldier's body armor or continuously wrapping hand warmers around larger batteries.

Finally, to conduct dismounted maneuvers in the snow, both brigades are equipped with snowshoes and skis for Soldiers. When Soldiers do not train with them, they are funneled onto plowed roads, but trained Soldiers are reduced to speeds as low as 250 meters an hour in tactical movements – or they can cover three to four kilometers in an hour, depending on the terrain.

These unique operational variables impacted both training-center rotations and the Cavalry squadrons' ability to conduct R&S operations.

## JPMRC 22-02

The SBCT and 5-1 Cav started with an advantage during JPMRC 22-02 compared to 1-40 Cav. To enter the box, 5-1 Cav needed to conduct a 100-mile tactical roadmarch along a double-lane paved plowed road. This played directly into the SBCT's strength, enabling the squadron to get into the fight and deploy more than 90 percent of its combat power in the box within the first 24 hours.

Once the Strykers arrived in DTA, they were confined to one of the four plowed roads in the box. As a result, a single obstacle enabled the opposing force (OPFOR) to close a mounted avenue of approach (AoA), which multiple companies needed to maneuver through. On the west side of the area of operations (AO), the AoAs led to one of the tallest ridge lines in the area, which resulted in repeated exposure of RTU vehicles.

On three occasions, one troop and two infantry companies were destroyed on this ridgeline before a dismounted zone reconnaissance culminated in the seizure of the decisive terrain when the OPFOR retrograded out of the area. These operations were more akin to a movement-to-contact than an attempt at reconnaissance operations.



**Figure 2. Ridgeline dominating DTA during JPMRC 22-02.** (Photo by 1LT Tristan Meadows)

The Stryker's ability to sustain itself by carrying multiple days of supply benefited echelons at all levels. Platoons deployed with three to five days of supply (DoS) of Class I, Class III and Class V and could rapidly relocate to a sustainment node and refit for several days of combat. The squadron failed on one aspect of sustainability when it conducted a refuel-on-the-move after its initial tactical roadmarch. A single plowed road became a parking lot as convoy serials attempted to position themselves in line for the fueler. Completion of refueling operations were not complete until 48 hours later due to the traffic jam. In these situations, the squadron doesn't just rely on fuel to maneuver but also to maintain critical life-support functions to keep Soldiers warm.

The 5-1 Cav command-and-control capabilities relied on frequency-modulation (FM) communications and the Joint Battle Command-Platform (JBC-P) for communications among platoons, troops and the squadron. Although the SBCT is equipped with many HF platforms, the squadron only had two operations throughout the 10-day force-on-force exercise.

FM communications remained degraded in the AO due to the muskeg, and the deployment of a retransmission Stryker proved difficult due to the lack of plowed pull-offs for a retrans element to operate on. JBC-Ps are degraded so far north since most of the Global Positioning System network satellites operates off an equatorial orbit and lack line-of-sight to the poles due to trees and the Alaskan Range to the south.

## JPMRC 23-02

The 1-40 Cav's deployment through a combination of two airborne jumps and a 350-mile tactical roadmarch caused immediate issues with its ability to mass all its combat power in the box. Weather and plane delays resulted in not all scheduled jumpers deploying and led to dismounted forces stuck in Anchorage, 350 miles from the fight. These Soldiers deployed three days later using contracted civilian buses to make the trip. The mounted organizations had the same problem as 5-1 Cav encountered in the previous rotation, with their maneuver limited to roads. However, 1-40 Cav elements dealt with extreme supply limitations during their deployment.

The two mounted troops, Aero and Blackhawk, repeatedly deployed on the only two skylining roads in YTA that run west to east through the area. The roads offered great opportunities for use of the squadron's Long-Range Advance Scout and Improved Target-Acquisition System but against a dug-in enemy, 1-40 Cav endured repeated failures to conduct effective reconnaissance. The dismounted troop, Chaos, did not fully deploy as a reconnaissance element until Day 9 of the operation, when they conducted a successful air assault where they effectively cut off the enemy's only line of communication to the rear.

Chaos Troop initially jumped into YTA on Day 1 of the operation but did not receive enough sustainment support. This resulted in the troop simply surviving on the drop zone until Day 7, when the troop reconsolidated around



the squadron command post (CP) to plan for the air assault.

The combination of mounted and dismounted organizations in 1-40 Cav did not allow them to deploy with the same combat load as the Strykers. Paratroopers jumped with a maximum of one DoS, relying on the sustainment bundles that were either dropped before or after them. In Chaos's case, these bundles did not make it to them, and they could not put all Soldiers in front of a heat source until Day 4; they resorted to "cold bagging" in their sleeping bags a night. The temperatures at this time favored their survival since the low was only 10 degrees Fahrenheit through the entire exercise, but five days later, temperatures on Fort Wainwright reached -12F at night. If Soldiers had "cold bagged" it at these temperatures or colder, many Soldiers in the company would have quickly become cold-weather casualties and would have required medical evacuation to the rear.

## Way forward

To successfully conduct Cavalry R&S operations in the Arctic and align with the 2021 Arctic strategy, squadrons cannot field the same modified table of organization and equipment (MTOE)

as squadrons in the lower 48. The 5-1 Cav transitioned from an SBCT to an IBCT this year but received the same MTOE as every IBCT Cavalry squadron, with the promise of changes later. In both rotations, the OPFOR made excellent use of tracked vehicles with Small-Unit Support Vehicles (SUSVs) or snow machines to maintain freedom of maneuver against the RTU.

The SUSV, originally produced in 1980, is now a legacy system in 11<sup>th</sup> Airborne Division with very few vehicles still operational. The division plans to replace remaining SUSVs with more than 100 CATVs in the coming years.

Snow machines were fielded in February 2023 to 11<sup>th</sup> Airborne Division in limited numbers and were used by the RTU and OPFOR as sustainment assets. Snow machines need to be pushed to line troops in quantities that allow them to use them to emplace and displace observation posts for R&S.

Chaos Troop, 1-40 Cav, had five snow machines with them, but since the troop was not deployed until Day 9, they were unable to use them at the tactical level. Equipping each line troop with a minimum of eight snow machines would enable two for sustainment, leaving six for tactical

operations. That allows a section of scouts to maneuver in all terrain in a single lift.

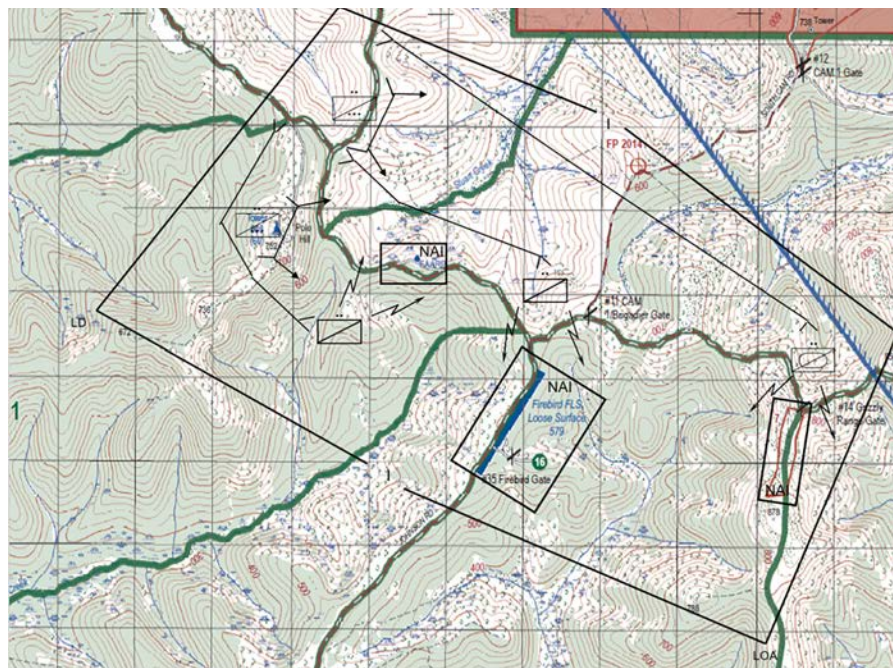
Cavalry leaders learn the importance of dismounted operations during the courses of Scout Leader's Course and Reconnaissance and Surveillance Leader's Course. This reconnaissance method was employed very little by both 5-1 Cav and 1-40 Cav, but the OPFOR displayed great success in dismounted operations. Using skis and snowshoes, OPFOR elements in both rotations repeatedly infiltrated behind the forward-line-of troops and attacked rear CP nodes. The mounted troops in 5-1 Cav and 1-40 Cav need to maintain a minimum of a dismount platoon if they continue operating with humvees that are limited to roads.

Maintaining a dismounted platoon in the Alpha and Bravo troops ensures survivability of the mounted platoons and enables off-road maneuver. The dismounted platoon is then able to clear terrain in front of the mounted platoons to enable their maneuver. The dismounted platoon can then rely on the mounted platoons for more firepower and sustainability. The two JPMRC rotations by 5-1 Cav and 1-40 Cav highlights the inability for purely mounted organizations to conduct successful R&S operations in the Arctic.

Finally, HF and TACSAT communications platforms need to be embraced by all echelons to stop reliance on FM communications. The 1-40 Cav had success using the platforms such as Mobile User Objective System and Warfighter Information Network-Tactical from the platoon to squadron level and had little reliance on FM.

The 1-40 Cav still had their own communication difficulties, but they did not repeat 5-1 Cav's mistakes and had communications platforms that did not rely on line-of-sight.

The Army is spending money on innovation in the Arctic, from snow machines to CTAPs and CATVs. Other armies have successfully fought in the Arctic for years, such as Finland in the 1939-1940 Winter War, and they have succeeded using simple methods that are still taught in Cavalry doctrine but



**Figure 3. Author's depiction of a Cavalry troop conducting a zone reconnaissance using dismounted, mounted and snow machine (tracked) methods.**  
(Graphic by 1LT Tristan Meadows)

often not practiced. The squadrons are benefiting from the influx of money to the organization, but you don't need a \$1,000 battery warmer that weighs 15 pounds to keep a AAA battery warm when a Soldier can use his body heat.

Reinforcing 5-1 Cav to a truly Arctic Cavalry squadron with off-road mobility platforms of snow machines and CATVs, conducting dismounted operations and leveraging TACSAT and HF communications at all echelons will enable 5-1 Cav's success in JPMRC in February 2024 and the success of future operations in Arctic environments.

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*assignments include platoon leader, 5-1 Cav, Fort Wainwright. He served as Red Platoon leader for Bandit Troop, 5-1 Cav, during JPMRC 22-02 and as observer/coach/trainer for Chaos Troop, 1-40 Cav, during JPMRC 23-02. His military schooling includes Basic and Advanced Military Mountaineering Courses, Heavy Weapons Leader's Course, Stryker Leader's Course, Scout Leader's Course, Air-Assault Course, Armor Basic Officer Leader's Course, UH-72A Light-Helicopter Repairer Course, UH-60 A/L-M Helicopter Repairer Course and Basic Combat Training. 1LT Meadows has a bachelor's of science degree in criminal justice from the University of North Dakota and a bachelor's of arts degree in sociology from the University of North Dakota.*



**Cold Weather Leaders Course students move through the rugged terrain at the Northern Warfare Training Center's (NWTC) Black Rapids Training Site, AK, during a snowstorm in March 2023. NWTC cadre worked overtime to help meet the increased need for more Arctic experts in the units to help pass critical knowledge throughout the formations. (U.S. Army photo by John Pennell, 11th Airborne Division)**

**Spec. Zachary Ewing digs out a personal sleeping space in preparation for an overnight without a tent at the Northern Warfare Training Center's Black Rapids Training Site, AK. (U.S. Army photo by John Pennell, 11th Airborne Division)**



## ACRONYM QUICK-SCAN

**AO** – area of operations  
**AoA** – avenue of approach  
**CATV** – Cold-Weather All-Terrain Vehicle  
**CP** – command post  
**CTAPS** – Cold-Temperature Arctic Protection System  
**DoS** – days of supply  
**DTA** – Donnelly Training Area  
**FM** – frequency modulation  
**FST** – forward-support troop  
**HF** – high frequency  
**HHT** – headquarters and headquarters troop  
**IBCT** – infantry brigade combat team  
**JBC-P** – Joint Battle Command-Platform  
**JPMRC** – Joint Pacific Multinational Readiness Center  
**MTOE** – modified table of organization and equipment  
**OPFOR** – opposing force  
**R&S** – reconnaissance and security  
**RTU** – rotational training unit  
**SBCT** – Stryker brigade combat team  
**SUSV** – Small-Unit Support Vehicle  
**TACSAT** – tactical satellite  
**YTA** – Yukon Training Area