Scouts, Collection Managers, and Unmanned Aerial Vehicles in Large-Scale Combat Operations

by Captain Jordan M. Peters

You can never have too much reconnaissance.

—GEN George S. Patton Jr.

Introduction

Our Nation's focus has decisively shifted from conducting counterinsurgency and train-advise-assist operations in Iraq, Syria, and Afghanistan in an effort to prepare for great-power competition. The establishment of Security Force Assistance Brigades in particular has enabled traditional Army brigades and divisions to refocus training on combating traditional standing armies, albeit with a hybrid twist. Relieved from continuous deployment cycles to the Middle East, conventional units now have the opportunity to plan and prepare for peer-to-peer combat. For the infantry, it is a renewed emphasis on breaching enemy fortifications and clearing trenches. For cavalry scouts, it means trading in training on patrolling and security force operations for face-paint and camouflage netting. For many, peer-to-peer combat means going back to basics.

The Effectiveness and Proliferation of Unmanned Aerial Vehicles

The wars in Iraq, Syria, and Afghanistan have unquestionably benefited the Army with experience and a wealth of new tactics and technologies. Undoubtedly, among the most impactful technologies are the unmanned aerial vehicles (UAVs), colloquially referred to as "drones." These have been instrumental in supporting efforts to locate, track, and eliminate al-Qaeda, Islamic State, and Taliban targets. The difficulties of distance and terrain, coupled with the virtual nonexistence of air defense capabilities on the part of terrorists and non-state actors, have helped fuel the rapid expansion of UAV programs. Between 2001 and 2008, the United States conducted 50 drone strikes. Between 2008 and 2012, that number increased to 400 and, according to at least one study, accounted for the elimination of approximately 3,300 al-Qaeda and Taliban members. The proliferation of UAVs further attests to their usefulness, as more than 90 nations have purchased or developed

Photo by Army SPC Javan Johnson

A Soldier looks through binoculars to check for simulated opposing forces during a field training exercise at the Vaziani Training Area near Tbilisi, Georgia, March 4, 2020.

reconnaissance UAVs. Currently, China is spearheading the proliferation of UAVs by offering a variety of relatively inexpensive platforms for sale.[1]

Along with the rapid development of a number of military technologies, China's efforts in the field of UAVs have yielded dramatic results. The new DR-8 UAV, reportedly able to deploy from China's first indigenous aircraft carrier, is a long-range reconnaissance aircraft.[2] Designed to fly at supersonic speeds, the DR-8 is reportedly able to evade both missile and air defenses, thereby making it one of the few UAVs theoretically capable of operating in a large-scale combat environment. The Chinese newspaper, *South China Morning Post,* reporting the newly developed drones, boasts that China is the only nation possessing a supersonic stealth UAV. This means China is, apparently, the only nation claiming to be able to conduct unmanned intelligence, surveillance, and reconnaissance in a large-scale combat environment.[3]

In Russia, UAVs under the control of the Russian Aerospace Forces focus on reconnaissance at the operational level. The newest UAV, the Forpost-R, boasts a range of 250 kilometers, a speed of 200 kilometers per hour, a ceiling of 6 kilometers, and a dwell time of 18 hours. At the strategic level, the 6-ton, twin-engine Altius enjoys the same speed but operates for up to 48 hours. While Russia is developing UAVs capable of kinetic strikes, most of its existing fleet appears unarmed and thus highly vulnerable in large-scale combat operations. Besides intelligence collection, Russia's military uses the Orlan-30 to lase targets, making laser-guided munitions, both from artillery and aircraft, exceptionally accurate as demonstrated during Russian operations in Syria. In a large-scale combat environment, such practices would obviously be contingent on Russian control of the airspace, without which precision-guided munitions would be without their silver bullet.[4] Undoubtedly, UAVs designed for reconnaissance and kinetic operations are effective tools in the counterinsurgency kit bag. However, their usefulness in large-scale combat operations is far from certain.

Antisatellite Technologies

Collection managers rely not only on UAVs for collection but also on national assets in space. Once thought untouchable, these platforms may well be among the first casualties in any future conflict between the United States and a peer threat. Recognizing the importance of space-based intelligence collection assets, China and Russia have labored to develop antisatellite missile systems. For Russia, tests began in the Soviet Union during the 1960s and 1970s to develop a missile that could approach enemy satellites in orbit before detonating. With the end of the Cold War, the global development of antisatellite capabilities largely fell by the wayside until, in 2007, China successfully destroyed an outdated weather satellite 500 miles from Earth in high orbit. Much like the weather satellite, the global moratorium on antisatellite missile technology was obliterated. Since then, antisatellite technology has slowly proliferated, with India in 2019 joining the ranks of the United States, Russia, and China as one of the few countries to successfully develop an antisatellite missile capability. As space becomes increasingly shared and contested, the proliferation of antisatellite missile technology will likely continue.[5]

"Both states [China and Russia] are developing jamming and cyberspace capabilities, directed energy weapons, on-orbit capabilities, and ground-based antisatellite missiles that can achieve a range of reversible to nonreversible effects" [6]

Unfortunately for American military and intelligence planners, missiles are not the only antisatellite tools in a potential adversaries' kit bag. At a 2018 technology summit, Defense Intelligence Agency (DIA) Director LTG Robert Ashley discussed the national competitor's focus on "the ability to interdict satellites both from a ground standpoint and from a space standpoint," and added, "the technology is being developed right now. It is coming in the near future."[7] In February 2019, DIA reported that the development of Russian and Chinese antisatellite laser technology was just 1 year away from achieving the capability to target satellites in low Earth orbit. Chemical sprayers, high-power microwaves, radiofrequency jammers, kinetic kill vehicles, robotic mechanisms, and, yes, lasers, are among those tools and capabilities that China is developing. The targeting of American satellites to degrade or deny intelligence collection and Global Positioning System capabilities may well be among the opening blows of any conflict between China and the United States. While unable to match Chinese investment in developing offensive space capabilities, Russia inherited a comprehensive technical expertise in satellite and rocket technology from the Soviet Union and, according to a public DIA report, "began delivering a laser weapon system to the Aerospace Forces that likely is intended for an [antisatellite] mission."[8] Just as American commanders and collection managers cannot rely upon the utilization of UAVs in large-scale combat operations, neither can they rely on space-based collection assets.

Aerial Superiority

The winning and maintaining of aerial superiority has for nearly a century served as a staple of American

military planning and strategy. Not since World War II, has an enemy air force seriously opposed American airpower. In large-scale combat operations with a peer threat, the United States can expect to encounter staunch opposition not only from a hostile air force but also from a network of integrated ground-based missile defenses. Expanding upon such a scenario, in 2017, U.S. Air Force Maj. Gen. (then Brig. Gen.) Alex Grynkewich said, "We may no longer be able to prevent adversaries from operating within their own integrated air defenses. Instead, we will control their airspace for a discrete time and over a limited area, as defined by the needs of the joint force team. Control of the air is not an end in and of itself—we set the air superiority condition only so we may then exploit the air domain to maximum effect and preclude an adversary from doing the same."[9] In such an operational environment, the survivability of even the most advanced combat aircraft is far from assured. As prospects of our own aerial superiority are far from certain, potential adversaries work diligently to develop UAVs and incorporate them into their services. What then does this say for the potential survivability of American UAVs tasked by collection managers attempting to conduct reconnaissance operations?

What, then, does this mean for American commanders at all levels operating in a large-scale combat environment? While utilization of UAVs as surveillance platforms and reconnaissance assets may occur in a large-scale combat operations environment, until aerial superiority is achieved, it is difficult to see how the entire range of collection platforms can be safely employed. The conflicts in Afghanistan, Iraq, and Syria have understandably nurtured reliance on UAVs for real-time and long-range reconnaissance. However, in an operational environment with an opponent that boasts modern integrated air defense systems—an environment in which even the aerial superiority that leaders have counted on for decades is not guaranteed—UAVs will not perform the majority of reconnaissance and collection. At the tactical level, large-scale combat operations will revert the reliance for reconnaissance back to ground-based sensors. In short, the return of peer-to-peer war heralds the return of the preeminence of the cavalry scout.

The Significance of Ground-Based Reconnaissance

Ground-based reconnaissance units stood for thousands of years as a commander's eyes and ears on the battlefield. Only with the development of airplanes and satellites in the 20th century and UAVs in the 21st century could a commander enjoy an overhead view of the area of operations. Contested airspace therefore diverts commanders back to a more traditional form of reconnaissance—scouts. FM 3-90-2, *Reconnaissance, Security, and Tactical Enabling Tasks, Volume 2,* reflects this transition, stating, "Reconnaissance primarily relies on the human dynamic rather than technical means."[10]

Meant to collect and provide information about the terrain, civil considerations, and enemy forces, ground-reconnaissance forces enable both commanders and intelligence to plan operations and fill intelligence gaps especially at the battalion, brigade, division, and corps levels. Commanders direct these assets, ensuring their employment falls within the scope of their capabilities and limitations. There is an expectation that commanders will use every method of collection available to them, following the principle of reconnaissance that no reconnaissance assets are to be held in reserve. The intent of having a variety of platforms is to complement one another, filling in the gaps and covering the limitations of various methods. For example, while inclement weather may preclude UAV collection, ground reconnaissance elements are an all-weather asset.[11]

U.S. Army photo by SPC Dustin D. Biven

A U.S. Army cavalry scout assigned to Headquarters and Headquarters Company, 1st Battalion, 63rd Armor Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division, uses leaves and branches in the fields of Hohenfels Training Area to camouflage himself while looking for opposing force soldiers during Combined Resolve X in Hohenfels, Germany, May 4, 2018.

Reconnaissance and IPB

FM 3-90-2's Chapter 13 reads, "Reconnaissance is a focused collection effort. It is performed before, during, and after other operations to provide information used in the intelligence preparation of the battlefield (IPB) process, as well as by the commander in order to formulate, confirm, or modify his course of action (COA)."[12] Put simply, reconnaissance fuels the IPB process. In planning for reconnaissance operations, however, squadron and brigade-level S-2's conduct an (often hasty) IPB process to prepare reconnaissance units to depart prior to a brigade's main body. The information collected by these reconnaissance assets then serves as an input to higher-level staffs conducting a more in-depth IPB process.

To effectively manage the IPB process and plan collection management at the squadron and brigade levels, intelligence officers and collection managers require a thorough understanding of the capabilities and challenges of ground-based reconnaissance. To understand the symbiotic relationship between reconnaissance and the IPB process, intelligence professionals should study the reconnaissance-pull and reconnaissance-push methods. Reconnaissance-pull is reconnaissance that determines which routes are suitable for maneuver, where the enemy is strong and weak, and where gaps exist, thus pulling the main body toward and along the path of least resistance. Commanders opting for the reconnaissance-pull method use the products of the IPB process in an interactive and repetitive way. Combat information is used to determine a preferred course of action based on the tactical situation. Reconnaissance-push is reconnaissance that refines the common operational picture, enabling the commander to finalize the plan and support shaping and decisive operations. The commander uses the products of IPB interactively with combat information to support a course of action already identified. In contrast, leaders opting for the reconnaissance-pull method rely on the information obtained and relayed by reconnaissance assets to determine a course of action in concert with IPB products.[13] Despite the difference between the two, it is important to note that both IPB products and reconnaissance serve as key inputs into a commander's decision-making process.

Before deploying a reconnaissance unit, the commander should establish the overall objective of reconnaissance with input from intelligence staff and collection managers. Like aerial reconnaissance, ground-based reconnaissance can focus on locating enemy forces. While aerial reconnaissance can identify terrain features, ground-based reconnaissance is uniquely equipped to identify, classify, and map obstacles and terrain features of all kinds. A useful though often overlooked tool reconnaissance units can provide is the route report, or ROUTEREP. In it, reconnaissance units examine and report route trafficability, location and description of built-up areas, lateral routes, bridge classifications, fording sites, bypasses (overpasses, underpasses, culverts), and obstacles (natural and manmade).[14] At the squad level, reconnaissance units are trained to use mathematical formulas to calculate slope, gradient of a curve, and surface velocity of streams and to classify bridges. This information is subsequently reported up to the squadron leadership and back to brigade-level intelligence and operations planners in the form of a ROUTEREP. The graphic depiction of a ROUTEREP into a route-classification overlay is incredibly useful, as it drives planning for both the subsequent deployment of the main body of forces and resupply operations.

Modern collection managers and intelligence professionals receive instruction on collection platform capabilities and limitations—from tactical-level UAVs to national-level space-based assets. Unfortunately, unless they have ever served in a ground-based cavalry unit, few understand the capabilities and limitations of a standard reconnaissance unit at the platoon, troop, or squadron level. Stealthy reconnaissance, for example, is methodical and time consuming. Small groups of scouts, often dismounted, will use terrain to maximize cover and concealment as they work to accomplish the reconnaissance objective undetected. Though accustomed to comparatively quick UAVs ranging the battlespace freely, S-2s relying on information from ground-based reconnaissance should be prepared to wait.

Ground-Based Technical Capabilities

The greatest capability of a ground-based reconnaissance unit is its ability to observe and report. The newest version of the Long-Range Advanced Scout Surveillance System, the LRAS3, enables scouts to observe as far as 20 kilometers. Expected to be fielded by fiscal year 2025 and equipped with forward-looking infrared, the LRAS3 enables users to identify targets and obtain a 10-digit grid coordinate without having to leave concealed positions.[15] While UAVs may prove impractical in large-scale combat operations, unattended ground sensors may not. Fielded in the early 2000s in Iraq and Afghanistan, unattended ground sensors act as a form of remote reconnaissance and force multiplier for traditional reconnaissance units and collection managers alike. Equipped with optical, acoustic, and seismic sensors, the system can consistently monitor an area in many of the same ways a cavalry scout could without having to place a Soldier in harm's way. And unlike the limited dwell time restraints considered by collection managers during collection

planning, the unattended ground sensors remain in a sleep mode until the sensors are triggered, whereupon the system automatically activates to process and transmit back to its control cell. These systems are a force multiplier for any reconnaissance unit and offer the potential to conduct continuous reconnaissance and intelligence collection.[16]

Photo by Air Force MSgt Mark C. Olsen

Researchers with the Army's Communications-Electronics Research, Development and Engineering Center at Fort Belvoir, VA, are upgrading the Long-Range Advanced Scout Surveillance System sighting system to give troops high-definition visuals and allow them to use it while concealed.

Just as collection managers and military intelligence (MI) professionals retain a working knowledge of the capabilities of various UAV platforms, so too should they acquire knowledge of the capabilities and limitations of ground-based reconnaissance assets. The Army Reconnaissance Course held at Fort Benning, Georgia, trains Soldiers primarily from the Armor and Infantry branches to plan and conduct reconnaissance operations. As the Army transitions from counterinsurgency to large-scale ground combat operations training, collection managers and MI Soldiers should push to attend the school, as it provides an understanding of ground reconnaissance largely lost during 20 years of counterinsurgency operations. Ultimately, every collection manager and MI professional needs to understand the fundamentals of reconnaissance in order to perform their wartime missions.

Conclusion

Collection managers perform an essential function in intelligence support to both counterinsurgency and large-scale combat operations. In nearly 20 years of continuous counterinsurgency operations, the science of collection management in support of such operations has advanced considerably while the collection managers themselves have received invaluable experience in performing their roles. While a single reconnaissance asset has never been able to answer every intelligence requirement, the technological advancements have multiplied commanders' and collection managers' options. Collection managers have increasingly grown accustomed to developing complex collection plans involving technical platforms. However, the fast-paced and contested nature of large-scale ground combat operations requires the utilization of collection assets on a tactical scale. Collection managers operating in large-scale combat environments will need to get creative because of the vulnerability of technical intelligence collection from UAV and space-based platforms. The relationship between unit commanders, scouts, MI professionals, and collection managers will need to adapt to reflect this coming reality. In training centers and at home stations, we should reexamine, outline, and finalize these relationships before events force their development on the battlefield. The future of our military depends on it.

Endnotes

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