

Posture to Get More Arms into the Combined Arms Fight

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Our rifle company had advanced through wooded terrain enroute to our objective rally point. From there we planned to stage our attack on a key village in the brigade area of operations. While we were deliberately crossing a linear danger area (LDA) four kilometers from the objective, we began receiving accurate enemy artillery fire. We plunged forward into the wooded terrain between the LDA and the objective to move out of the effects area. The cost was nearly a platoon's worth of Soldiers.

We consolidated, made slight adjustments to our plan due to the losses, and proceeded to our assault position. Just as we were preparing to commence our attack, the enemy's mortars opened a deluge on our assault position, wreaking havoc amongst our remaining squads. A cursory glance upwards identified the agent of our destruction — a small unmanned aircraft system (SUAS) orbited our location, audibly undetectable. How long had it been watching us?

This short vignette reflects a common experience for units training in a decisive action training environment (DATE) rotation at the Joint Multinational Readiness Center (JMRC) in Germany. I have witnessed this tendency firsthand over the course of a five-year assignment at JMRC, first as a member of the opposing force (OPFOR) and now as an observer-coach-trainer (OCT). After participating in more than 20 DATE rotations from 2016 to present, I am convinced our rifle (really, all maneuver) companies, and by extension, our battalions/squadrons, need to be better trained and equipped to deal with the threats on the modern battlefield and those likely to emerge on the horizon.

One need only to look at the pictures and videos coming out of the Nagorno-Karabakh conflict between Armenia and Azerbaijan to appreciate this assessment.¹ As an Army we must reanalyze how we are preparing and posturing for combined arms maneuver at the tactical level given armed SUAS and electronic warfare (EW) capabilities, as these can reasonably be expected to characterize the next battlefield on which we will fight. We should consider SUAS and EW capabilities as “arms” that must be combined in the combined arms fight and make adjustments with those implications in mind.

Looking at the Present

For the most part, rotational training units (RTUs) arriving for a Combat Training Center rotation at JMRC (generally a brigade in size and always containing some multinational allied or partnered formation) need to be better prepared to effectively employ their organic SUAS and counter the enemy's. Units often arrive with few or no SUAS master trainers in their formation, and their training programs may barely keep their SUAS operators mission-qualified and able to fly, let alone remain proficient in operating in a DATE. Further, brigades may not have developed adequate airspace coordination and deconfliction procedures for SUAS operations within the brigade airspace or issued clear guidance on how to request that airspace. When procedures have been established, they are generally unwieldy and too restrictive to support the battalion-and-below fight (e.g., requiring requests 48 hours prior to use). Frustrations regarding the inability to obtain restricted operating zones (ROZs), limitations on frequencies available for use, inability or delays in receiving replacement parts, operators breaking equipment from crashes or failed launches, and a litany of other challenges encountered in trying to operate SUAS may have discouraged their use. This results in some commanders questioning the value of SUAS, and what's more, lacking the knowledge and experience to develop and resource a sustainable and effective training program to achieve efficient use from their systems and operators; thus the SUAS programs they are responsible for may never get off the ground.

These challenges may compound to such a level that it leaves SUAS operators undertrained and underemployed; thus the RTU misses fleeting opportunities from information obtainable by effectively employed SUAS. Since SUAS is often underutilized in training, our leaders may lack the critical knowledge and experience necessary to effectively employ SUAS, resulting in units failing to understand and account for the enemy's ability to use SUAS against them. This can lead to formations underappreciating exposure to enemy SUAS, to include enemy indirect fires, which leads to catastrophic results for the RTU.

An Example

In July 2020, during the Saber Junction 20 exercise, the infantry company I was observing was tasked with moving six kilometers and establishing a support-by-fire (SBF) position in order to facilitate the battalion's clearance of an objec-



Figure 1 — A view from the opposing force small unmanned aerial system operator's mission computer of the rotational training unit consolidated on their side of the obstacle awaiting the breach to be opened.

tive, with a follow-on mission for the company to seize a village. The company coordinated with engineers to breach an expected enemy obstacle prior to their SBF position. The company began movement just before midnight with the intent of being set in their SBF positions by sunrise.

Around 0300 the company identified an unobserved enemy obstacle and called forward the engineers to conduct a breach while they pulled local security. Little did the company or battalion know, OPFOR SUAS had been observing their movement since 0200 and was currently loitering undetected over the formation (see Figure 1). After a 20-minute period of observation, the OPFOR SUAS operator requested and received accurate indirect fires through his battalion, causing numerous casualties to the RTU.

By 0600 a breach of the obstacle was affected, and the company moved into their SBF positions overlooking the objective. The delay at the breach and desynchronization in the battalion from the indirect fires resulted in the assaulting company having already cleared the objective prior to the SBF positions being occupied, making them unnecessary. The company then paused awaiting further instructions as the sun came up over the horizon.

A cursory glance upward was enough for the OCT to observe an SUAS orbiting the company at 450 feet above-ground-level (AGL). The OCT inquired with the commander if the SUAS was friendly and received a response to the negative. The OCT then asked the commander where the "DroneBuster" was located and received the reply: "It's in the truck." The device was moving with the company in a manner that it could not be rapidly employed nor was any effort made to retrieve the device after becoming aware of the enemy SUAS overhead.

Recognizing their location was compromised, the

company consolidated into a column formation with minimal spacing and attempted to move expeditiously towards its follow-on objective. Within moments enemy indirect fire was landing amongst the now consolidated company, causing casualties and disrupting the formation. As the company started to run out of the effects area, Soldiers began to bunch up. After 200 meters they were surprised when they ran into an enemy tank section overwatching a key intersection along their avenue of approach (the tank section having been alerted and directed to an effective position by the SUAS operator). The company was not in an effective posture to deal with this threat and continued to take casualties.

This example is a regular occurrence at JMRC. First, the RTU could have identified the enemy tank section located at the key intersection described had it

effectively employed its own SUAS. Second, the RTU could have defeated the enemy SUAS observing its position and calling for fire on them if it had accounted for that threat in planning and had equipment readily available for employment. These two failures are directly attributable to more than 30 casualties during the operation.

In addition to SUAS, the OPFOR at JMRC effectively employs EW systems. Using equipment fielded to them for threat replication purposes, the OPFOR is able employ organic man-portable electronic warfare support (ES) tools to locate RTU elements across the battlefield. They then pass this information to an SUAS operator who is co-located. The SUAS operator then flies towards the enemy's general location to identify the source of the signal intelligence (SIGINT),

Figure 2 — Another OPFOR SUAS operator view. This time the company is moving towards the follow-on objective after realizing they are under enemy observation. Enemy artillery began impacting shortly after this picture was taken.



invariably identifying the RTU element. This technique has been used numerous times with decisive results and is made possible by the right mix of trained personnel and equipment.

Looking Towards the Future

It is important as an Army that we begin to look at SUAS and EW as “more arms” in the combined arms fight.² Consider the following:

- How well are U.S. formations prepared to deal with suicide unmanned aerial vehicles (UAVs)/drones, such as those observed in use by Azerbaijan?
- Perhaps our formations can defeat one or two UAVs with current equipment; how about a swarm of small suicide drones?
- Is it possible to create a protective umbrella over a formation that denies UAVs access to engage our forces?
- If so, how big an umbrella is possible, and should that capability be organic to the formation being defended or as an attachment from a higher echelon on an “as needed” basis?

In the fighting in Nagorno-Karabakh, the Azerbaijan military has successfully employed armed UAVs in a peer conflict with Armenia. Some of these UAVs are designed as suicide drones, which identify their target and then fly into them, destroying the target. Armed UAVs have provided the Azerbaijani forces with a decisive advantage at the tactical level despite similar legacy equipment on both sides across the other arms of the combined arms fight (i.e., tanks, artillery, etc.).³

To deal with this and the threats currently emerging or projected to emerge on the horizon, we should:

- Immediately invest in a robust and sustainable SUAS/counter-UAS(C-UAS)/EW program at the battalion and company level; and
- Reconsider the design and equipment of our rifle companies to include a dedicated SUAS/C-UAS/EW element.

Companies and battalions need to be more proficient at employing SUAS and countering enemy SUAS. A full complement of SUAS master trainers for the battalion and companies, along with a bench of qualified operators, should be pursued. Additionally, operator training must go beyond currency flights and delve into employment tactics, techniques, and procedures (TTPs) beyond simple orbits, as well as an understanding of the enemy they are expected to encounter, enhancing employment and reporting. Training should not be limited to operators; leaders must understand

the capabilities of their organic systems so they can plan to employ these assets to maximize the information they can provide, while appreciating the enemy’s capabilities and the potential threats to friendly formations. C-UAS training should be conducted across the battalion to prepare Soldiers to operate in environments with enemy UAS. The training needs to prepare Soldiers how to respond, and if adequately equipped, defeat enemy UAS within their capability. When collective training is conducted, the associated OPFOR element should be equipped with a SUAS capability to adequately replicate the SUAS threat. We should be treating SUAS/C-UAS as an arm to be combined and be as proficient in its use as we are with our other weapons.

An Example

The current SUAS master trainer in the 1st Battalion, 4th Infantry Regiment (OPFOR) — SSG Christopher Curley — is arguably the best SUAS operator/master trainer in U.S. Army Europe (USAREUR) and quite possibly the best in the Army.⁴ He has operated SUAS during more than 12 DATE rotations at JMRC, supporting both company and battalion operations. He is the epitome of a well-trained and experienced operator. As his company commander during six of the rotations, I benefited from his expertise and came to understand that a highly competent and experienced SUAS operator is a substantial combat multiplier.

We were able to employ SSG Curley in a number of



Photos courtesy of author

An OPFOR company commander and SUAS operator observe an RTU attack that was developing in real time during a rotation at the Joint Multinational Readiness Center.



(Left) A Soldier launches a Puma from a concealed location. (Center) The SUAS section works with a joint terminal attack controller to identify targets for close air support. (Right) A battalion commander keeps the Puma hand controller close at hand for real-time intelligence.

interesting ways due to his proficiency. In one instance, after receiving SIGINT of an enemy counterattack staging to hit us in the flank, he quickly launched a quadcopter to identify the forces as they staged, rapidly attacked the opponents in their staging area, and destroyed the enemy counterattack forces. In another instance, he used a Puma to identify an enemy hasty defensive position consisting of a Stryker vehicle and its dismounts, coordinated directly with a friendly squad on the ground, and then maneuvered those Soldiers undetected to within 50 meters of the enemy by telling them when and where to move, thus positioning the squad to surprise and destroy the enemy. In yet another example, SSG Curley disrupted an enemy attack by flying a quadcopter at eye level and in plain view of a tank commander's (TC's) head while the tank was stationary in an SBF position (certainly a disconcerting experience for the TC) and proceeded to chase the tank across the field as it fled obvious enemy observation. He was particularly effective when paired with a fire support officer (FSO) and some engagement criteria; on multiple occasions the pair would destroy enemy formations with particularly accurate indirect fires, reporting the battle damage assessments (BDA) as they went.

In July 2020, SSG Curley and a small section augmented a Polish mechanized battalion acting as the OPFOR during the Allied Spirit XI wet gap crossing exercise in Poland. He combined SUAS operators and intelligence analysts into a combat support element working directly for the battalion commander. The battalion commander used the information he was receiving from the section to call for fire and decide where to commit his reserve elements. This was a highly effective approach to integrating SUAS within a maneuver battalion and severely challenged the training unit. It is a model that we should consider for use elsewhere.

SSG Curley is unique in our Army, but creating capable and motivated SUAS operators like him should be our goal. The process to train someone to his caliber takes time and experience, something that is difficult to achieve when these skills are only an additional duty for the operators. Under the current Army construct, operators are selected from within a formation to receive training and employ SUAS as an extra duty, taking them away from their primary responsibilities. In SSG Curley's case, he is an 11B with the SUAS master trainer schooling who was filling a rifle team leader and later a squad leader position. We prioritized his time as an SUAS operator during DATE rotations instead of his assigned responsibility for the simple fact that it was more valuable to employ him in that manner than as a small unit leader on the battlefield. As a SUAS operator/section leader, his value to the organization was paramount and decisive, but it came at the cost of SSG Curley's development as a team/squad leader. What's worse, his future promotion in the Army is based on his performance and growth as an 11B and not what he is exceptionally talented at doing — SUAS operations.

With regards to EW, my knowledge is admittedly limited. I don't recall discussing EW in any kind of breadth or depth at the Maneuver Captains Career Course. Additionally, there aren't many opportunities to be exposed to EW activities as an infantry leader in training, short of a CTC rotation when EW capabilities are employed by the OPFOR. What little knowledge I do have comes from dabbling with the Versatile Radio Observation and Direction (VROD) as an OPFOR commander, and it only gives one the sense of scratching the surface of what's possible.

There will undoubtedly be things that emerge in the near future that will be important for company commanders to know. For instance, the ability to "see and hear" in the elec-

tromagnetic spectrum will be of tremendous value, indeed indispensable, and they will need eyes and ears to do so. Systems with this ability already exist and are certainly in the process of getting better. Their impact on the battlefield can reasonably be expected to be significant. All of this would imply that commanders must understand at a minimum the capabilities and limitations of the systems available to them, as well as those of their enemy.

One example of an EW capability that is not well understood is in defense against UAVs. Current methods tend to focus on electronic attack (a form of EW) from handheld or stationary devices that break the link between the UAV and the control station/operator. When available, they are generally employed by Soldiers who have received limited training on the device. In this manner, EW is an extra duty (just like an SUAS operator) and likely not wholly understood or appreciated by the leaders who seek to employ it.

We see this gap in leader knowledge in other areas and in different magnitudes. Unless officers were fortunate to attend the Mortar Leader's Course or serve as a mortar platoon leader, they likely only have a passing knowledge of all the intricacies of effective mortar employment and are not subject matter experts (SMEs). This isn't a problem for most rifle company commanders as they have a mortar section sergeant who is the SME within their formation. There is no similar (and consistent) equivalent SME in the rifle company for SUAS and EW. "Additional duty" personnel, such as an SUAS master trainer (if you are lucky to have a Soldier receive the training), do not wholly meet the intent of an SME in this case (while they may have the training, they very often lack the experience). One obvious reason is that a mortarman is a Military Occupational Specialty (MOS) — the other positions are not.

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battlefield. We do not treat SUAS and EW as arms in the combined arms fight, when it appears ever more evident that we must.

An Option for the Future

One way we might address these challenges and enable flexibility in our formations for the future battlefield is to reconsider the design of our rifle company (and by extension all of our maneuver companies). To that end, adding a combat support section to the rifle company would add the backbone of SUAS/C-UAS/EW capability organic to the infantry company (see Figure 3). This section would function in a manner similar to a mortar section. Where the mortars provide the indirect fire arm, the combat support section provides the SUAS/C-UAS/EW arms, with the section leader acting as the SME to inform and advise the company commander on capabilities, limitations, and effective employment. Also, like mortars, a special MOS should be implemented to staff these sections.

Such a section has several foreseeable advantages for the future development of the SUAS/C-UAS/EW arms across the force:

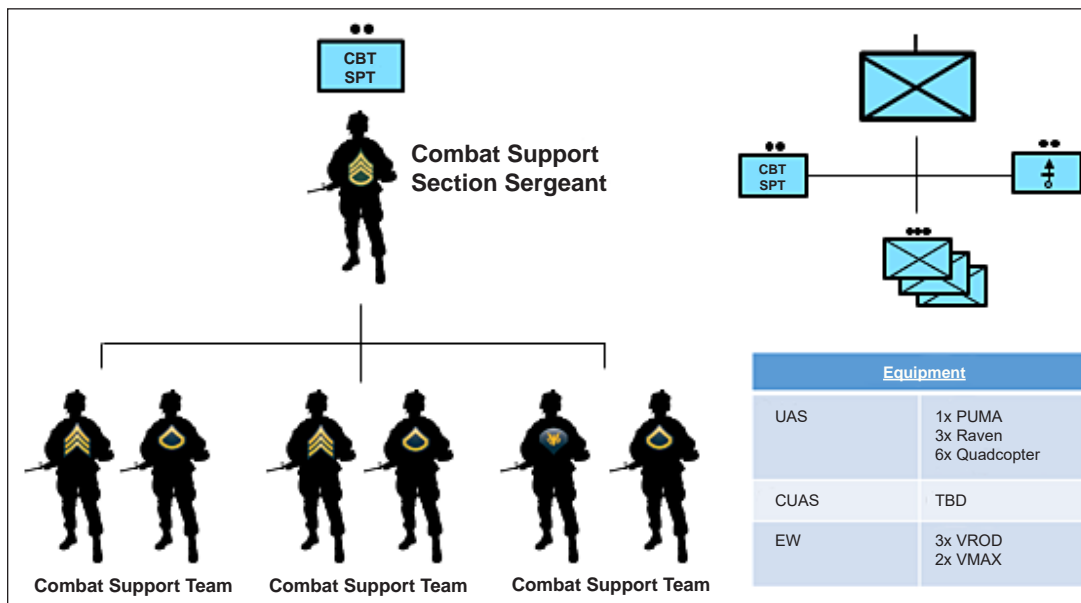
- Equips company formations with devices and operators that are significant combat multipliers to the force, both offensively and defensively;
- Creates the conditions for a burgeoning population of Infantrymen mastering skillsets necessary for success on the future battlefield;
- Establishes a foundation within the force to add emerging capabilities and equipment for immediate implementation into our formations, rather than a bolt-on capability; and
- Provides for SMEs within the companies who will inform and train leaders at the lowest level, growing the knowledge base on how to employ and defend against the SUAS/C-UAS/EW arms.

How might this look in practice? Let us reconsider the vignette from the beginning:

One hour prior to start point, we launched the decoy drones. Once over the objective, the leading drones dove against suspected enemy positions, their payloads exploding on impact. Within minutes the enemy's jamming device began to knock our remaining drones out of the sky, but by doing so had revealed its position, as intended.

The combat support section was split into three two-man teams; Team 1 positioned 1 kilometer north of the company, Team 2 with the lead

Figure 3 — An Example of a Possible Combat Support Section



platoon, and Team 3 with the section leader and FSO located near the mortars. Teams 1 and 3 were waiting with their EW surveillance devices and immediately detected the jamming device, whose position they were able to triangulate. The grid was rapidly fed to the mortars, and within two minutes rounds were on the way. The jammer signal ceased immediately following the mortar impacts, and we assumed it had been destroyed, giving us a short-term advantage.

Teams 1 and 3 launched Pumas, with Team 1 surveilling the avenue of approach and Team 3 observing the objective; conditions were set and the company started movement. Shortly after stepping off, Team 2, which was moving with the lead platoon, identified an enemy UAV and brought it down with handheld jamming devices, denying the enemy observation of the company. Several more enemy UAVs followed with the same result, some clearly armed as they exploded when they hit the ground.

Shortly after the enemy UAVs were defeated, Team 3 identified with its Puma an enemy fire team moving in the company's direction, likely a patrol, as well as the enemy position the patrol had just departed. Team 3 passed this information to Team 1, which took up observation with its Puma. The FSO, observing Team 3's Puma feed, worked up a target on the enemy position for the artillery. Team 1 observed the patrol moving through the woods and halting at the LDA the company had to cross before reaching the assault position. Team 1 now launched a weaponized drone, and when the rounds from the artillery started impacting on the objective, used the confusion to attack the enemy patrol, killing two and driving the others back. The way was now clear for the company to the objective.

The company rapidly crossed the LDA and entered the assault position while preparatory fires were placed on the objective. Team 2 gathered the Soldiers it had cross-trained and equipped with additional UAV jammers and placed them according to plan, establishing an anti-UAV screen. Once set, Team 2's NCO gave the thumbs up to the platoon leader. Fires onto the objective were shifted, and the assault commenced with Team 1's weaponized drones overhead in support while the commander patiently observed the operation through Team 3's Puma feed.

The lead platoon's attack quickly provoked the enemy's key defensive weapons to open fire. Team 1's drones observed a machine-gun position 200 meters to the lead platoon's front that was causing the attack to stall. A few seconds later, Team 1's drone crashed into the machine-gun position, disabling it; the platoon could now get moving.

Just as the lead platoon seized a foothold, an enemy drone swarm appeared from beyond the objective deeper in enemy territory. The Team 2 NCO, alert to the possible threat, identified the enemy drones and gave the signal to activate the jammers, causing the swarm to come apart and collapse; few made it to the infantry and detonated.

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Several additional friendly drone attacks on key enemy assets, combined with the weight of the infantry assault and accurate artillery fires throughout the enemy's depth, dismantled the enemy defense at a very low cost. The company commander shuddered to think about the losses his company would have suffered if the enemy had been able to observe their approach to the objective and bring the full weight of their fires and weaponized drones to bear.

A scenario such as this is plausible given the current advances in technology and the tactics already emerging, whether observed through the outcomes achieved by the Azerbaijan military in the Nagorno-Karabakh conflict or by the SUAS master trainer at JMRC. Each rotation that I observe makes it more apparent that treating SUAS/C-UAS/EW as additional arms to be combined in the combined arms fight will be necessary to succeed on today's battlefield.

Notes

¹ Stijn Mitzer, "Losses on the Sides of Armenia and Azerbaijan," Oryx Blog, 3 November 2020, accessed from <https://www.oryxspioenkop.com/2020/09/the-fight-for-nagorno-karabakh.html>.

² Jack Watling (Interviewee). "The Conflict in Nagorno-Karabakh Is Giving Us a Glimpse into the Future of War," Modern Warfare Institute, podcast audio, 14 October 2020, accessed from <https://mwi.usma.edu/mwi-podcast-the-conflict-in-nagorno-karabakh-is-giving-us-a-glimpse-into-the-future-of-war/>.

³ Michael Kofman and Leonid Nersisyan, "The Second Nagorno-Karabakh War, Two Weeks In," *War on the Rocks* 14 October 2020, accessed from <https://warontherocks.com/2020/10/the-second-nagorno-karabakh-war-two-weeks-in>.

⁴ 1LT Matthew Blubaugh, "1-4 IN Regiment is Spearheading the Future during Combined Resolve," Defense Visual Information Distribution Service, 10 May 2018, accessed from <https://www.dvidshub.net/news/276453/1-4-regiment-spearheading-future-during-combined-resolve>.

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