

# Commercial sUAS in Support of Targeting

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In 2017, the Islamic State of Iraq and the Levant weaponized commercial off-the-shelf (COTS) small unmanned aerial systems (sUAS); the first drones were outfitted with rudimentary systems that dropped grenades and 60mm mortars.<sup>1</sup> Fast forward to the Nagorno-Karabakh conflict and we saw Azerbaijan successfully target Armenian armored forces using Turkish Bayraktar TB2 drones. In the Russian invasion of Ukraine, we have seen extensive use of drones from both sides — at both the tactical and strategic level.

These systems are, and will continue to be, a great threat on the modern battlefield. While our anti-access and area denial (A2AD) bubble may protect us from enemy fighters and bombers, we may not be adequately equipped nor trained to protect against the sUAS threat — which makes them perfect for enemy use to conduct reconnaissance, locate high-payoff targets (HPTs), and strike targets of opportunity against U.S. forces.

During 3rd Battalion, 509th Parachute Infantry Regiment's recent participation in Joint Pacific Multinational Readiness Center – Alaska (JPMRC-AK) Rotation 24-02 as the opposing force (OPFOR), we were augmented with various commercially available quadcopters and fixed-wing systems such as the DJI Phantom 4 Pro, TSTORM, and Mavic Air 2. We integrated these systems into our collection matrix which resulted in the destruction of dozens of HPTs — including the brigade tactical operations center (TOC), brigade support area (BSA), Role 2, artillery batteries, and counter-battery radars.

Our success was largely the result of a seamless integration of the operations, intelligence, cyber, and fires warfighting functions to allocate collection to determine targets. First, we identified the high-value target (HVT) and HPT lists for that battle period. Next, the intelligence, cyber, operations, and fires teams combined the collection and fires synchronization matrices into one product to reduce the time spent editing documents. Of note, we routinely consulted the warfighting function leads to help us determine where assets would be located — forming a battalion-level targeting board.

## Figure 1 — Example of Not Tying Camouflage into Environment

(Had the cannons tucked into the wood line, they would have been much more difficult to locate. Additionally, this photo was taken from a drone after we received multiple counter-battery hits to this location. Had these guns fired and then relocated, they would have been much more difficult to locate. Both of these howitzers were destroyed after this photo was taken.)



When it came to integrating COTS sUAS into the targeting cycle, they would generally be cued on by echelons above brigade (EAB) assets to validate and pull a 10-digit grid. Then the drone operators would relay the target location to the S2, who would push it to the fires cell while the drone remained on station as the observer. This gave us the ability to immediately assess battle damage as well as adjust fire off the drone feed.

Adopting these techniques at the battalion level while employing COTS sUAS led to the destruction of at least one of everything on our HVT list during the rotation. In large-scale combat operations, we must assume that our near-peer adversaries have the same capabilities that we do and carefully consider this risk. Becoming untargetable is impossible. However, there are actions leaders can take now to mitigate the risk of catastrophic strikes against critical assets and succeed during Combat Training Center (CTC) rotations. Listed below are some successful tactics that our organization observed while acting as OPFOR during JPMRC-AK 24-02:

**1) Camouflage.** Generally, the rotational training unit (RTU) did a good job at attempting to camouflage tents and gun positions, but more often than not, vehicles or satellites parked in the open gave them away. If a drone feed picked up multiple vehicles, we would then conduct a more thorough search for a tent or expando van. Once located, we would call for fire on this location with a 10-digit grid. We also applied this technique to locate 120mm mortars and howitzers. The guns were often somewhat concealed, but the prime movers were not and co-located right next to the mortar/cannon. Additionally, just because you throw a camo net over something does not mean that it becomes concealed. Operators must tie camouflage into the surrounding natural terrain. This was especially true when it came to locating howitzers (which often appeared as a large camo net in the middle of a field) or TOCs (where tents were located next to buildings instead of utilizing the buildings or overhead structure for concealment). Had these guns tied into a wood line or natural surrounding terrain, it would have been much more difficult to locate with sUAS.

**2) Survivability Moves.** The more often an asset can jump, the greater its survivability becomes. Small UAS are cheap and readily available, and our near peers now have nearly, if not the same, collection capabilities that we do. We often give off easily targetable large physical and electromagnetic signatures. Jumping locations every 24 hours decreases the risk of detection and thus increases survivability. With this it is important to consider how your TOC is built; if it takes six hours to break down a tent and three to set up, then it is not feasible to jump every 24 hours and units must adapt.

**3) Operate in a decentralized manner/spacing.** One Joint Light Tactical Vehicle may not be worth targeting, but five or six right next to each other present the opportunity for a mass casualty event. We routinely located large groups of both vehicles and Soldiers. This is especially true when it came to the BSA. During JPMRC 24-02, we were able to immediately locate the RTU's BSA based on a map reconnaissance, which we then confirmed with sUAS. Instead of seeking overhead cover or dispersing their vehicles, the BSA staff had a tendency to park everything right next to each other and squeeze as many vehicles and tents as possible onto concrete pads. This allowed for mass destruction with one or two fire missions. Had these vehicles sought overhead cover and dispersed, it would have been much more difficult to target them. For example, the Role 2 and fuel depot do not need to be in the same area. If these assets can seek overhead cover and spread out, then it becomes much more difficult to find them. In addition, rear echelon units are especially vulnerable targets, and our adversaries do not have the same moral compass that we do. Logistics units are easy to locate, easy to hit, and often lack security. In the future, it is imperative that rear echelon units consider that their assets are almost always HPTs and adjust training accordingly.



**Figure 2 — Example of Large Amount of Vehicles Grouped Together**

(Map reconnaissance and a knowledge of the limitations of logistics vehicles led us to investigate the series of concrete pads in the brigade rear area. In the photo, you can see that the vehicles are located in the open and tightly packed, which makes them an optimal target.)

**4) Incorporate sUAS into situational training or field training exercises.** U.S. forces are often not accustomed to sUAS threats because we rarely incorporate them into our training exercises. Until we begin to integrate these assets into situational training exercises and continue to use them during CTC rotations, we will not become accustomed to this threat. During the first 96 hours of JPMRC 24-02, we very rarely saw the destruction of sUAS because the RTU was not accustomed to this threat. It wasn't until the RTU realized that sUAS were often followed by the arrival of indirect fires that it began to react.

**5) Each squad needs anti-drone capabilities.** Once units become accustomed to the threat of sUAS on the battlefield, they must be outfitted with the ability to destroy them. We saw this during JPMRC 24-02. After a few days of being harassed by drone swarms/drop munitions and receiving indirect fire after seeing sUAS overhead, the RTU started to space its vehicles, seek better overhead cover, and employ Drone Busters or other kinetic means across the battlefield. Units should be outfitted with man-packable detection devices such as a Bal Chatri 2 as well as kinetic devices such as Drone Busters or Smart Shooter SMASH 2000Ls. Without the ability to take down drones or eliminate drone operators, there is little units can do to react. To protect our force, it is imperative that they are equipped with the proper equipment.

JPMRC-AK 24-02 showed the value of sUAS in modern warfare. With the sunset of both the RQ-7 Shadow and RQ-11 Raven systems on the horizon, there will be a capabilities gap within a brigade combat team. A proposed short-term solution is to purchase Department of Defense-approved COTS drone systems from the Blue List and field them to maneuver companies and battalion scout platoons. These systems are easy to operate and give companies the ability to conduct reconnaissance as well as achieve effects through drop munitions. These commercially available drones may even have better wind, ice, and precipitation tolerance than Army programs of records and can be repaired or replaced much faster. COTS sUAS are a viable short-term solution to bridge the capability gap, but they are not a permanent one. The Army should



**Figure 3 — Tactical Operations Center Camouflage**

**(The TOC tent was well camouflaged and not located on the first flyover, but the vehicles and satellite in the open suggested it was there. We flew from a different angle and were able to locate the TOC tent and call for fire.)**

consider creating a sUAS section or platoon within the headquarters company at each maneuver battalion and outfit them with both reconnaissance and kinetic sUAS. These sections/platoon would increase both the reconnaissance capabilities of a battalion/squadron as well as increase their ability to conduct limited targeting against adversaries.

#### **Notes**

<sup>1</sup> Joby Warrick, "Use of Weaponized Drones by ISIS Spurs Terrorism Fears," *The Washington Post*, 21 February 2017, [https://www.washingtonpost.com/world/national-security/use-of-weaponized-drones-by-isis-spurs-terrorism-fears/2017/02/21/9d83d51e-f382-11e6-8d72-263470bf0401\\_story.html](https://www.washingtonpost.com/world/national-security/use-of-weaponized-drones-by-isis-spurs-terrorism-fears/2017/02/21/9d83d51e-f382-11e6-8d72-263470bf0401_story.html).

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