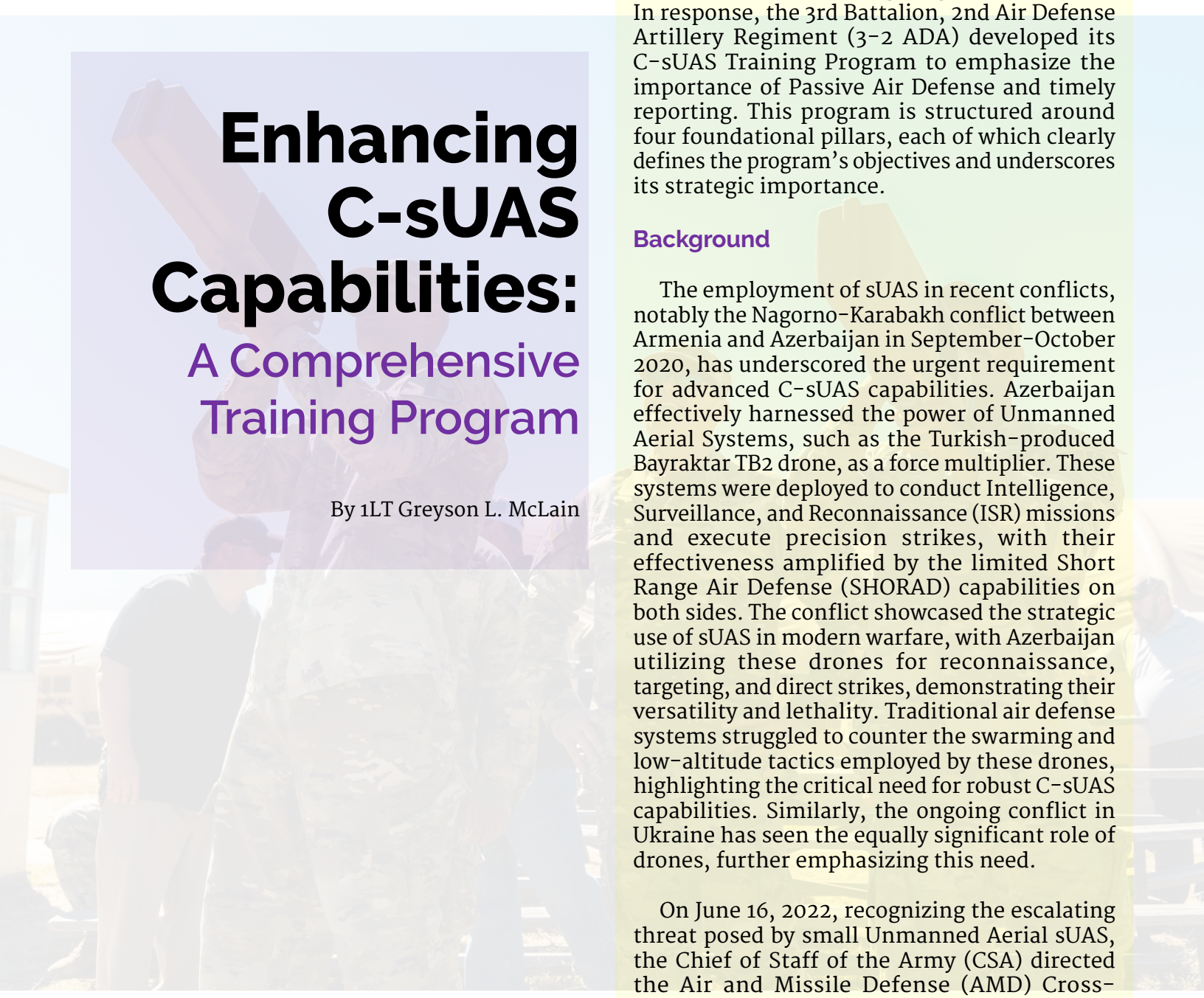
Enhancing C-sUAS Capabilities:

A Comprehensive Training Program

By 1LT Greyson L. McLain



Background photo: MG Phil Brooks, Fires Center of Excellence and Fort Sill Commanding General, observes as students practice disabling UAVs during training at Fort Sill's new Joint Counter-small Unmanned Aircraft Systems (C-sUAS) University (JCU). *(By Christopher Wilson, Fort Sill Public Affairs Office)*

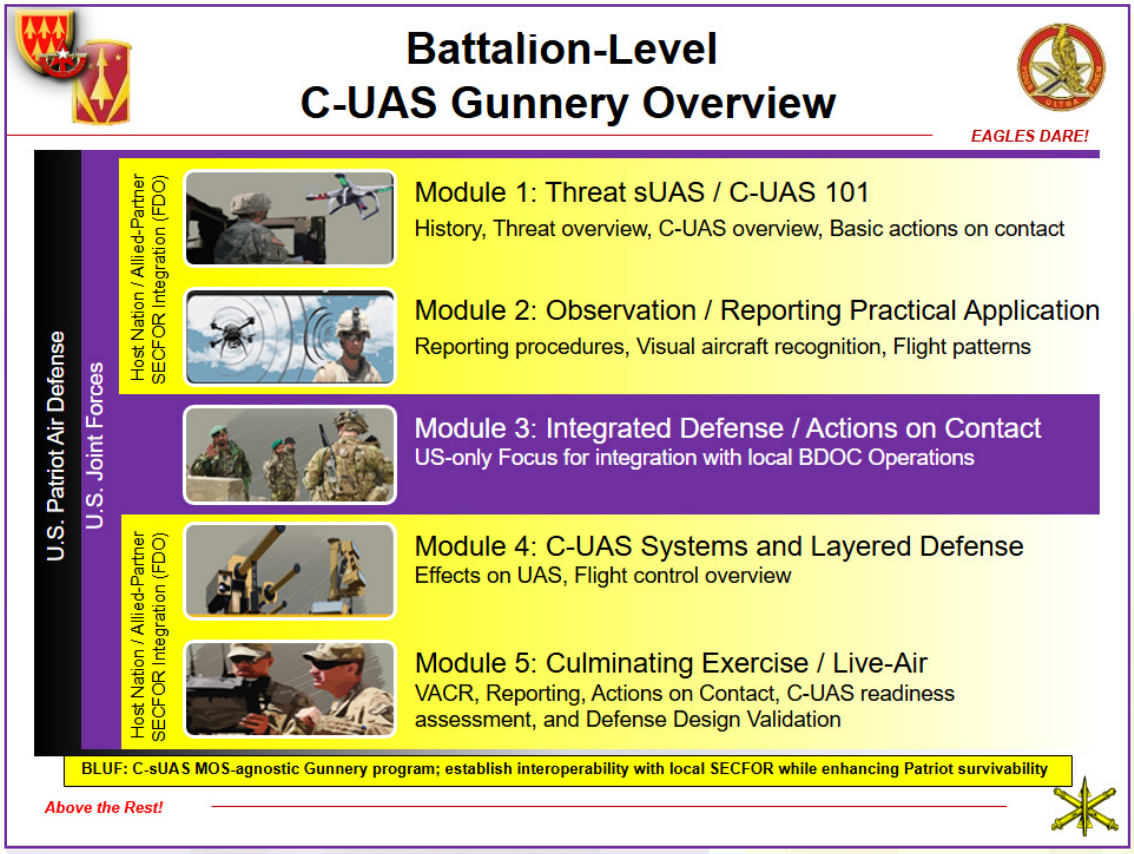
Introduction

The rapid proliferation of small Unmanned Aerial Systems (sUAS) has necessitated the development of robust Counter-Small Unmanned Aerial Systems (C-sUAS) capabilities within the U.S. Army. To effectively counter these threats, a comprehensive training program is essential. In response, the 3rd Battalion, 2nd Air Defense Artillery Regiment (3-2 ADA) developed its C-sUAS Training Program to emphasize the importance of Passive Air Defense and timely reporting. This program is structured around four foundational pillars, each of which clearly defines the program's objectives and underscores its strategic importance.

Background

The employment of sUAS in recent conflicts, notably the Nagorno-Karabakh conflict between Armenia and Azerbaijan in September-October 2020, has underscored the urgent requirement for advanced C-sUAS capabilities. Azerbaijan effectively harnessed the power of Unmanned Aerial Systems, such as the Turkish-produced Bayraktar TB2 drone, as a force multiplier. These systems were deployed to conduct Intelligence, Surveillance, and Reconnaissance (ISR) missions and execute precision strikes, with their effectiveness amplified by the limited Short Range Air Defense (SHORAD) capabilities on both sides. The conflict showcased the strategic use of sUAS in modern warfare, with Azerbaijan utilizing these drones for reconnaissance, targeting, and direct strikes, demonstrating their versatility and lethality. Traditional air defense systems struggled to counter the swarming and low-altitude tactics employed by these drones, highlighting the critical need for robust C-sUAS capabilities. Similarly, the ongoing conflict in Ukraine has seen the equally significant role of drones, further emphasizing this need.

On June 16, 2022, recognizing the escalating threat posed by small Unmanned Aerial sUAS, the Chief of Staff of the Army (CSA) directed the Air and Missile Defense (AMD) Cross-Functional Team (CFT) to serve as the lead Force Modernization Proponent. A Memorandum for Record (MFR) prioritized the distribution of C-sUAS Division Sets to specific Army Divisions, scheduled for procurement in fiscal years 2022-2024. This initiative aimed to bolster the Army's capabilities in countering the evolving UAS threat by providing advanced training and equipment.



The MFR approved an incremental fielding plan, including the New Equipment Training/New Equipment Fielding (NET/NEF) for handheld/dismounted equipment in the third quarter of fiscal year 2023. The AMD CFT has been pivotal in developing new training programs and fielding advanced equipment to counter the sUAS threat, working closely with industry partners and other military branches to identify and integrate the latest C-sUAS technologies. These collaborative efforts have resulted in the development of new Tactics, Techniques, and Procedures (TTPs) and Standard Operating Procedures (SOPs) for C-sUAS operations, ensuring the Army is well-prepared to tackle the challenges posed by sUAS in a Large-Scale Combat Operations (LSCO) environment.

Objectives of the C-sUAS Training Program

Recognizing that Patriot Battalions will likely be co-located with C-sUAS systems and that the contemporary LSCO environment will be significantly influenced by the sUAS threat, the 3rd Battalion, 2nd Air Defense Artillery Regiment (3-2 ADA) developed its C-sUAS Training Program to emphasize the importance of Passive Air Defense as well as the importance of timely reporting. This training program is structured around four foundational pillars, each of which clearly defines the program's objectives and underscores its strategic importance.

The first pillar emphasizes that C-sUAS is essential for success in a Large-Scale Combat LSCO environment. The transition from Counter Insurgency (COIN) to LSCO heavily relies on leveraging UAS to advantage while defending against hostile UAS. Similar to the Improvised Explosive Device (IED) threat in the Global War on Terror, drones allow non-state actors or less powerful adversaries to inflict significant damage on more powerful opponents. IEDs and hostile drones are both made from a wide range of materials, making them difficult to detect and counter. In a LSCO environment, the ability to counter sUAS threats is crucial for protecting critical assets and maintaining operational freedom. The 3-2 ADA C-sUAS Training Program aims to equip Soldiers with the knowledge and skills necessary to effectively counter sUAS threats, ensuring that the Army can operate effectively in a contested environment.

The second pillar highlights that the training program is Military Occupational Specialty (MOS) agnostic, making it relevant for all soldiers at every rank and every job within the Battalion. This ensures that every member is equipped with the necessary knowledge and skills to contribute effectively to C-sUAS operations. The program avoids using language specific to the 14 series MOS and leverages concepts familiar to Soldiers in all MOS' such as the SALUTE report format to introduce and allow non-Air Defenders to integrate into Air Defense operations. By making the program MOS agnostic, 3-2 ADA ensures that all units are well-prepared to address C-sUAS threats effectively, regardless of their primary MOS. This approach not only facilitates seamless integration but also enables the Battalion to align with TTPs and SOPs in various combatant commands, including CENTCOM,

EUCOM, and INDOPACOM. By standardizing these procedures, 3-2 ADA ensures consistency and effectiveness across the force.

The third pillar dictates that the program must be able to serve as a tool for U.S. Joint, Host Nation/ Allies, and Partner Integration and to increase US / Host Nation interoperability. This enables 3-2 ADA to develop and solidify SOPs with friendly forces in the theater, resulting in increased reaction time, enhanced longevity, and decreased missile expenditure. A significant amount of TTPs, SOPs, and C-sUAS systems are built upon lessons learned from Joint, Allied, and Partner nations. Integration with Joint, Allied, and Partner nations is crucial for maintaining a cohesive and effective defense strategy against sUAS threats. By collaborating with these partners, 3-2 ADA can leverage their experiences and expertise to enhance its own C-sUAS capabilities. This integration also ensures that the Battalion is well-prepared to operate in a multinational environment, where interoperability and coordination are essential for mission success.

The fourth pillar highlights that home station training program must include C-sUAS training in order to meet the CENTCOM Theater-Entry Requirements. In order to meet this requirement, the program must teach Soldiers to identify, analyze, and report UAS threats, while leaders must integrate C-sUAS knowledge into their base defense and self-protection procedures. This comprehensive approach ensures that the Battalion is well-prepared to address the evolving threats posed by small unmanned aerial systems. By mandating this training, 3-2 ADA ensures that all soldiers and leaders are equipped with the knowledge and skills necessary to effectively counter sUAS threats. This training is essential for maintaining the safety and security of U.S. forces in the CENTCOM theater, where the threat of sUAS is particularly acute.

Key Components of the Training Program

3-2 ADA C-sUAS Training Program is designed to provide Soldiers and leaders with the knowledge and skills necessary to effectively counter sUAS threats. The program is structured around several key components, each of which is essential for achieving the program's objectives.

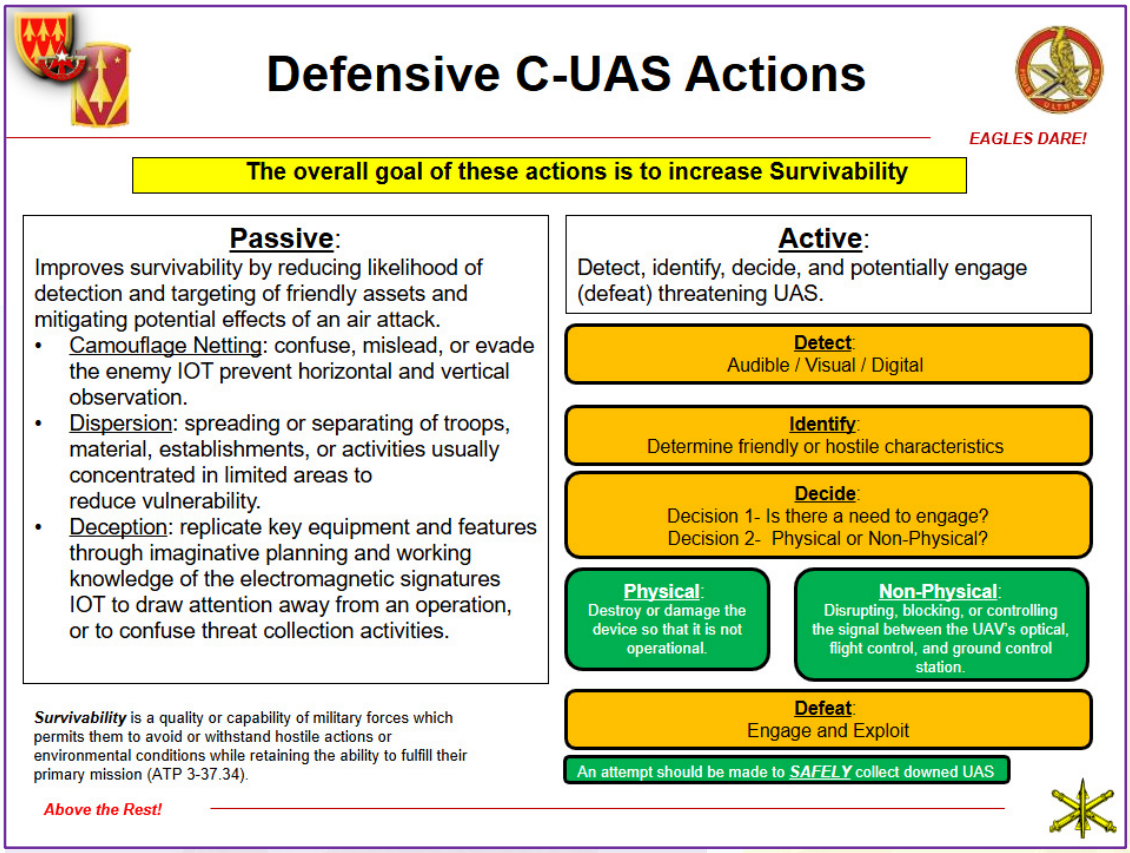
The first step in countering sUAS threats is detection and identification. Soldiers must be able to detect sUAS using a variety of methods, including visual, audible, and digital detection. Once a sUAS is detected, soldiers must be able to identify it and evaluate its characteristics to determine whether it poses a threat. This requires a thorough understanding of the different types of sUAS and their capabilities. As emphasized in Training Circular (TC) 3-01.80, air platforms are integral to the operational environment, akin to tanks and artillery, adding a crucial vertical dimension. Therefore, it is imperative for Soldiers to recognize and all types of drones. The program teaches skills such as Visual Aircraft Recognition (VACR) using the "WEFT" methodology (Wings, Engine, Fuselage, Tail), enabling Soldiers to identify various parts of a drone. Furthermore, Soldiers are introduced to the five groups of UAS, the distinctions between fixed-wing and rotary-wing drones, their respective advantages and disadvantages, and the diverse missions they undertake. This foundational knowledge enables Soldiers to swiftly identify threats and submit accurate reports.

The program introduces Soldiers and junior leaders to Defensive C-sUAS Actions, with instruction tailored to the audience's level of understanding. The overall goal of these actions is to enhance survivability, defined as the capability of military forces to avoid or withstand hostile actions or environmental conditions while maintaining their primary mission (ATP 3-37.34). Defensive C-sUAS actions are categorized into two types:

1. **Passive**: Measures that reduce the likelihood of detection and targeting of friendly assets and mitigate potential air attack effects. Examples include camouflage netting, dispersion, and deception.

2. **Active**: The capability to detect, identify, decide, and potentially engage threatening UAS.

This comprehensive approach ensures the curriculum remains relevant and impactful, equipping Soldiers with the essential knowledge and skills to effectively counter the advancing sUAS threat. This program emphasizes the importance and benefits of passive solutions as well as active non-kinetic solutions. Initial approaches to addressing UAS issues often lean towards kinetic solutions. This program underscores the significance and advantages of both passive and active non-kinetic solutions. While skills such as VACR can be readily demonstrated through simple practical reporting exercises, a proficient understanding of passive air defense



is more challenging to exhibit. An understanding of passive air defense concepts can be effectively conveyed through defense design briefs or included in emplacement considerations during Field Training Exercises.

Once a sUAS threat is identified and analyzed, Soldiers must be able to engage and neutralize it effectively. This requires a thorough understanding of the different types of C-sUAS systems and their capabilities. Soldiers must be able to select the appropriate system for the given situation and employ it effectively to neutralize the threat. This may involve the use of kinetic or non-kinetic methods, depending on the situation.

Once a drone has been defeated, an attempt should be made to safely collect the downed UAS. It is important to emphasize that units that find or disable a UAS must take care to address exploitation concerns in their recovery of the downed system using the "5 Cs": Confirm that the aircraft is down from a safe distance and relay this information to your Higher Echelon Unit (HEU); clear all personnel away from the aircraft; cordon the area; communicate continuously with the HEU; control the area.. By following these procedures, soldiers can ensure that the downed sUAS is safely recovered and exploited for intelligence purposes.

Conclusion

The 3-2 ADA C-sUAS Training Program is designed to be a living, breathing document that is continuously updated and improved based on feedback from Soldiers and leaders in the field. This ensures that the program remains relevant and effective in the face of the evolving sUAS threat. The program is regularly reviewed and updated to incorporate the latest TTPs, SOPs, and technologies, ensuring that soldiers are always equipped with the most up-to-date knowledge and skills. It represents a significant step forward in enhancing the U.S. Army's capabilities in countering small unmanned aerial systems. By focusing on the four foundational pillars, the program ensures that soldiers are well-prepared to address the evolving threats posed by sUAS in a Large-Scale Combat Operations environment. This comprehensive approach will continue to be a cornerstone in the U.S. Army's defense strategy against the ever evolving sUAS threat.

1LT McLain currently serves as the HHB/3-2 ADA BN XO and Counter-Small Unmanned Aerial Systems Cell OIC. He served as a Launcher Platoon Leader and Tactical Control Officer (TCO) in A/3-2 ADA BN. 1LT McLain has also served as a Tactical Director (TD) in the Fire Direction Center (FDC) and deployed with Task Force 5-7 ADA to Jasionka, Poland in support of Operation European Assure Deter and Reinforce. He earned his commission as an Air Defense Artillery Officer through the Reserve Officer Training Corps (ROTC) in August of 2021 from the University of South Alabama and is a graduate of the Air Defense Artillery Basic Officer Leadership Course (ADA BOLC) in Fort Sill, Oklahoma.