A Turkish unmanned aircraft Bayraktar TB-2 flies over the clouds. Although used in the early stages of the Ukraine-Russia war and extensively in the Nagorno-Karabakh war, electronic warfare and air defense systems have effectively negated the high-altitude, easily observable aircraft. (Photo by Mike Mareen via Adobe Stock)

Bayraktars and Grenade-Dropping Quadcopters II

Year Two of Ukraine-Russia Drone Warfare

Capt. Josef "Polo" Danczuk, New York Army National Guard

Over the last year, the use, tactics, and importance of unmanned aircraft systems (UAS), including small UASs (sUAS), has grown and transformed in the Ukraine-Russia War—and may have very well fundamentally altered the nature of tactics and warfare. In a July-August 2023 *Military Review* article, I outlined some common lessons from the first year of the Ukraine-Russia War and from the September 2020 Nagorno-Karabakh War between Armenia and Azerbaijan.[1] That article focused on the rapid, but not unexpected, increase in UASs and the need for effective defensive counters (C-UAS and C-sUAS). At the time, I'd hoped that'd be the end of it. Ideally, the war in Ukraine (and those worldwide) would slow or end, or, regardless, the U.S. Army would rapidly shake itself out of its C-UAS and UAS integration apathy and adjust tactics, manning, equipment provisioning, and training.

But as any soldier can tell you, other than predeployment theater-specific training and equipping, not much has changed since summer 2023. The modified table of organization and equipment (MTOE) remains largely the same—no C-sUAS or C-UAS capabilities have been created or distributed to echelons below divisions and their ostensible assigned Short-Range Air Defense (SHORAD) battalion. Further, no organic sUAS capability resides with maneuver or nonmaneuver units for their reconnaissance, intelligence, surveillance, and target acquisition (RISTA) ability or indirect fires. Doctrine also remains largely unchanged, not accounting for the threat of constant surveillance or accurate first-person view (FPV) UAS strikes.

Yet, this past year revealed that many of the lessons from my first article remain true, and some even more prominently so. Formal militaries and armed groups worldwide continue to acquire and employ UASs of various types in greater numbers and innovative ways. Most prominently from last year, the rise of small FPV one-way attack UASs in Ukraine has skyrocketed in some places of the battlefield, effectively supplementing or even replacing traditional fires. UASs are also used for RISTA, not only for fires but also for other UASs, sometimes in coordinating multiple independent FPV strikes on single or multiple targets. And UASs continue to dominate the information domain, including in conflicts other than Ukraine-Russia.

Defense against this constantly expanding UAS threat continues to be vitally important. In addition to more traditional fixed wing, rotary wing, tactical ballistic missile, and cruise missile threats, the increase in sUASs along the front lines and the ability for deep-strike UASs increase the need for air and missile defense (AMD) coverage, including in depth. Electronic warfare (EW) counters remain effective and essential but require the ability to deploy rapidly to immature and contested areas of operation, or else the window will open for hostile UASs to pick apart friendly forces at the outset of a conflict.

Some lessons are perhaps not as applicable. Last year's article highlighted the use of Group 4 and 5 UASs, including the nearly ubiquitous Bayraktar TB-2, which Ukraine and Azerbaijan utilized to great effect. However, as previewed in the previous article, UASs including Ukraine's TB-2s have started to fade from the battlefields.[2] As militaries have better integrated their EW and C-UAS capabilities, Groups 4 and 5 UAS have become less involved, though they would still be extremely effective in an immature theater as the early stages of the Ukraine and Nagorno-Karabakh wars showed.

And some lessons are largely new to this year. Last year's article noted that ground and naval unmanned vehicles would become more common and effective in combat operations and information exploitation.[3] In year two in Ukraine, while ground unmanned vehicles are only slowly coming onto the battlefields, Ukraine has developed and used unmanned one-way attack naval craft to great effect in the Black Sea, disabling or sinking multiple Russian navy ships. Ukraine's unmanned craft have effectively denied the Russian Black Sea Fleet access to the entire western Black Sea and given the Russian navy a serious public relations' black eye.

This article will review these developments

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A Ukrainian drone attacks the Russian landing ship *Olenegorsky Gornyak* on 3 August 2023 in the port of Novorossiysk on the Black Sea. (Photo by Pictorial Press, Alamy Stock Photo)

and connect them to doctrinal, organizational, and equipment requirements for the U.S. Army. It also briefly takes stock of current proposals and UAS and C-UAS efforts. Generally, the Army—and America's defense-procurement and force management structures—may be a big ship that requires turning slowly. However, as some national security leaders have noted, the United States cannot afford to lose the first battle and catch-up later, as has happened in past conflicts.[4] Failure to effectively and rapidly implement the lessons from worldwide UAS development will expose U.S. forces in the next major conflict to a dynamic, deadly, and high-quantity threat. The United States cannot afford to ignore it—not for the current force structure should war break out tomorrow, and certainly not for future force structure in 2030. Army units need their own organic UASs and C-UASs, including C-sUAS capability. Even short-term, cost-inefficient solutions are temporarily necessary, such as distributing Stinger and Dronebuster EW weapons systems to company- or battalion-level echelons or purchasing commercial-off-the-shelf (COTS) quadcopters for every company-size element. The need is too acute to delay.

Groups 1–3 UAS Use in Ukraine and Globally

Groups 1–3 UAS, which consist of the three smallest groups of UASs, have continued to impact the conflict on both sides in Ukraine.[5] As they did in the first year of the war, these sUAS, usually COTS quadcopter drones, fulfill three key roles. First, they provide a persistent, difficult-to-detect and defeat RISTA capability. Second, they can be rigged to drop munitions like grenades or mortars, combining their observation capability with a simultaneous and immediately correctable indirect fires capability. Third, the sUAS can be rigged with explosives for one-way attack, or "kamikaze" drones, often referred to as FPV UASs.

As last year's article discussed, Groups 1–3 sUAS provide an exceptionally useful RISTA capability directly at the lowest echelon. Rather than relying upon a larger, more targetable, and complex UASs, such as the U.S. Army's RQ-7 Shadow at the brigade combat team level or RQ-11 Ravens at the battalion level, these sUASs are small, very easy to operate, nimble in the air, and can loiter, providing persistent observation for an extended amount of time. Their ease of operation and low-cost relative to typical state-procured sUAS make them easy to distribute to echelons as low as the platoon or squad.[6]

In addition to surveillance of enemy troops and equipment, these sUASs are very effective when directly

The Ukrainian 25th Sicheslavska Brigade demonstrates their improvised first-person-view strike drones on 21 July 2023. (Photo courtesy of Army Inform via Wikimedia Commons)

integrated with fires assets.[7] It allows the fires controllers to see and directly control via the observing sUASs, enabling rapid correction of fires and immediate battle damage assessment. And just as with last year, these sUASs continue to perform this role effectively.

As a few of many examples, Russian Federation forces have been able to integrate sUAS drone feeds to target Ukrainian targets even behind the front line. In March 2024, Russia released drone surveillance footage of a cluster-munitions strike on three Ukrainian helicopters west of Avdiivka.[8] The strike resulted in the destruction of two of the three helicopters and represented one of the multiple examples of Russia's improved fires kill chain using real-time integrated video feeds from UASs.[9]

On the Ukrainian side, sUASs continue to observe Russian positions to spot targets and integrate fires, such as Ukrainian UAS spotting and coordinating a HIMARS (High Mobility Artillery Rocket System) strike against a Russian BM-27 "Uragan" multiple launch rocket system launcher.[10] As in the first year, traditional AMD platforms like the Russian Buk system appear highly susceptible to surveillance from Ukrainian sUASs, allowing for targeting by fires, including HIMARS.[11] In addition to coordinating fires, Ukrainian UASs are also used to coordinate ground attacks, allowing the drone operator to rapidly relay the progress of friendly forces and the enemy disposition to leaders on the ground.[12] Clearly, Groups 1–3 sUAS continue to succeed in their RISTA role despite increased efforts on both sides to negate them using EW and AMD systems.

Similarly to last year, such sUAS are also heavily employed to provide an offensive fires capability at low-level echelons. Both sides are rigging sUASs to carry and then drop grenades and other munitions on their enemies. In one key development from Ukraine, munitions-equipped sUASs are not just dropping on enemy personnel and equipment directly. They have also adapted to use sUASs to destroy damaged equipment on the battlefield.[13] This increases the potential lethality and impact on mission of a mobility kill on an enemy's vehicle.[14] Rather than just taking that vehicle out for the immediate fight and allowing the enemy to recover, repair, and return that equipment to combat later, a lethal-equipped sUAS can safely approach and destroy a disabled enemy vehicle, eradicating it with minimal risk to friendly forces.[15]

Notably, the tactics of Groups 1–3 sUAS, while never firstborn in the war in Ukraine, have expanded dramatically to other conflicts. First, Ukraine exported it via its support to the forces of the government of Sudan

in their battle against the Rapid Support Forces—backed by Russia's reimagined Wagner Group—in the ongoing Sudanese civil war.[16] Second, armed groups across the world have begun using UASs for RISTA and direct attacks. For example, rebels in Myanmar, fighting against the 2021 military-imposed junta, use such drones extensively despite fighting against a much better-equipped and funded adversary.[17] Hamas used such sUAS in their 7 October 2023 attack against Israel, employing sUASs to disable Israeli surveillance posts.[18] There is little reason not to expect such globalization to continue evolving and scaling up. The sUASs' ease of production, procurement, operation, and modification allow any armed group with only basic supplies to acquire and employ these capabilities in significant quantities, and the United States needs to be prepared for it no matter the next adversary.

The lessons for the United States are much the same as last year. First, the prevalence and effectiveness of Groups 1–3 sUAS in Ukraine and elsewhere means that U.S. forces should be equipped with their own sUASs. In July 2023, members of the Armed Forces of Ukraine expressed shock that their U.S. Army trainers had not even considered, let alone integrated, an sUAS aspect into their training or into their formations organically.[19] Adding such an sUAS would provide an organic RISTA and offensive indirect fires method directly to the lowest levels, improving protection of stationary sites, providing reconnaissance of ground routes and enemy positions, and providing targeting information directly to fires assets. And the Army is moving far too slowly.

In March 2024, the Army requested $25 million to provide COTS sUASs to some Army formations, citing "that some of our lower level units needed some ability to start experimenting with small UAVs."[20] But the time for "experimenting" has long passed. One of our two primary adversaries is two and a half years into its largest war since World War II, and yet the U.S. Army is only now focused on experimentation. Without a rapid influx of sUASs across the force, the Army will face the same situation it did when fighting in North Africa in World War II—when M3 Stuart light tanks went up against superior and battle-hardened German Panzer IVs—with similar expected results.[21]

Second, the sUAS threat to friendly forces is completely unmitigated in most Army formations. No equipment on a unit's current MTOE can counter it. All

An armed quadcopter drone belonging to the Ukrainian army's 30th Mechanized Brigade drops a red grenade on a Russian tank attempting a hit-and-run raid on Ukrainian positions north of Bakhmut in eastern Ukraine in late 2023. (Screenshot from 30th Mechanized Brigade via X)

formations, including frontline units, lack Dronebusters or other EW systems that could counter or mitigate the sUAS threat. Such systems exist, but as Army Techniques Publication (ATP) 3-01.81, *Counter-Unmanned Aircraft System (C-UAS)*, notes, they "are currently not programs of record" and are only available for receipt in special circumstances or upon "request from their higher headquarters."[22] Immediate predeployment equipping (and training) on these systems is inadequate. Soldiers need to learn how to integrate C-sUASs into every aspect of combat operations, from manning defensive strongpoints to conducting squad attacks. They cannot do so if they lack the equipment and knowledge.

Of course, something must be said against moving too quickly too soon. C-sUAS technology improves every day, and waiting for the most effective—and cost-effective—option to arrive before making a more permanent change to MTOEs and the like may be beneficial. But there is no doubt that the training and doctrinal changes can—and should—happen soon rather than relegating them to an appendix in ATP 3-01.81.[23] As sUASs becomes ubiquitous on the battlefield, C-sUAS tactics need to be too. A Dronebuster or similar system will need to be as handy as an AT-4 or a hand grenade from the front lines to rear command posts. That training and equipping should not be relegated to predeployment preparation.[24]

FPV One-Way Attack UAS in Ukraine

An innovation that gained prominence early last year is the advent and rapid improvement of FPV

A Ukrainian loitering munition made using a first-person-view drone is ready for employment on 21 September 2023. (Photo courtesy of Army Inform via Wikimedia Commons)

one-way attack UASs.[25] Over the last year, FPV UASs have been integrated into Ukrainian maneuver units and effectively supplement—or, in some places, surpass—traditional artillery.[26] Both sides of the war in Ukraine have dramatically ramped up production and use of such FPV UASs as an inexpensive, easily acquirable, and decentralized means of accurate and immediate fires.

FPV UAS typically refers to quadcopters similar to those described in the previous section, but they are specifically designed for high speeds, often called "racing drones." These UASs are designed to fly in one direction at higher speeds than regular quadcopters, which can move in any direction at approximately the same slower speed. For FPVs, the camera is mounted facing the intended direction of travel—hence, the controller sees a "first-person" view.[27] FPV drones started with light payloads, not dissimilar to those carried and dropped by quadcopters like grenades and mortars. Now, however, Ukrainian and Russian forces have strapped increasingly powerful and complex munitions to these FPV UASs, making them capable of destroying—not merely immobilizing—armored targets in a single strike or destroying entire buildings with enemy personnel inside.[28]

The use of FPV UASs requires skilled pilots, not only because such UASs are difficult to pilot generally but because they are also most effective when striking the precise weak point of a target.[29] This includes navigating—at speed to minimize the time for escape—through a small window, into trenches, and into weak points of armored vehicles, such as the rear or top.[30] The use of FPV UASs works best when coupled with at least one RISTA sUAS, allowing for detection of a target and guidance of the FPV UAS.[31] Take, for example, a recent Ukrainian FPV strike on Russia's most advanced main battle tank, a T-90. The RISTA UAS detected the tank moving, and Ukrainian forces dispatched (at least) two

coordinated FPV UASs, both striking the rear of the tank just seconds apart, disabling the T-90. Then, a final UAS nestled into a weak point of the immobilized T-90, causing a catastrophic fire.[32] And, as shown last year, the air defense systems intended to defend against air threats are still susceptible to such sUAS detection and subsequent FPV UAS attacks.[33]

Need for UAS Integration in the U.S. Army

Such FPV UAS attacks have dramatically changed tactics and, unsurprisingly, unit compositions in Ukraine. As a result of the success of these one-way FPV attacks and them "becom[ing] the main antitank weapon" in some spots, Russian forces have attempted to adapt.[34] Some Russian units have layered on blocky, slanted armor to their tanks, spaced off the primary armor, with the intent of an incoming drone detonating against that rather than the actual tank body.[35] As a result, their modern main battle tanks more closely resemble the first tanks of World War I. The fact that Russian forces are willing to sacrifice the lower profile and maneuverability of a modern tank design—probably because the likelihood of detection by Ukrainian RISTA UAS is extremely high anyway—to attempt to protect against FPV UASs strikes shows how incredibly potent and common FPV UASs have become.[36] While their ultimate effectiveness remains to be seen, these so-called "turtle tanks"—like the "cope cages" meant to ward off American-made Javelins during the initial 2022 invasion—are certainly not impervious to FPV UASs attacks regardless of their Verdun vintage "updates."[37]

Ukraine has dramatically updated the organization of its brigades to include specialized sUAS units. This allows them to maximize operator proficiency, decentralized employment, and coordination with fires and maneuver forces. Ukrainian President Volodymyr Zelenskyy announced in December 2023 that Ukraine would domestically "produce one million [FPV] drones" in 2024. He also announced the creation of specialized sUAS units, with an official announcement and presidential decree establishing a drone branch in February 2024.[38] Ukrainian maneuver battalions commonly have at least a sUAS RISTA and munitions-dropping element, and brigades hold a drone strike company, to include FPV sUASs.[39] Ukraine and Russia have both ramped up production of FPV sUASs massively. In Ukraine alone, drone production companies have increased from a single-digit handful before the war to over two hundred.[40] This article will not wade too far into the question of U.S. production of such sUASs, but the success of FPV sUASs clearly presents a need to add FPV sUASs into current Army formations immediately.[41]

As of now, the U.S. Army lacks any significant equipping of sUASs at the lowest echelons. While the Soldier Borne Sensor fielding is a step in the right direction, units require a more capable RISTA sUASs in terms of range, flight time, and optics capabilities.[42] And while Ukraine and Russia are producing and using tens of thousands of FPV UASs for offensive purposes monthly, the Army only just ordered one hundred Switchblade 600 loitering munitions "for testing and fielding."[43] The time for testing is running out—even an imperfect offensive UAS capability is required now. Seeking to ramp up production, fielding, and training while simultaneously deploying to the next conflict is impracticable and will inevitably result in the vanguard units deploying without the FPV UAS strike capability they need.

Separate from the production question is the question of manning units and training personnel to operate and employ sUASs. For many Army leaders—and Congress—the question has centered on the possibility of a "drone branch" of the Army, similar to the Ukrainian branch established in February.[44] While the baseline technical expertise required to operate and adapt sUAS to military applications is quite low, the appeals of a dedicated UAS branch—or at least UAS military occupational specialties (MOS)—are plentiful.

First, widescale employment of sUAS requires dedicated operators. Oftentimes, UAS operators wear a virtual reality headset or require two hands to operate their craft and need to communicate directly to the unit they're supporting or to the fires element for targeting. They cannot simultaneously act as an infantry soldier or vehicle crewmember. Second, the operation of sUASs, especially racing drones like the FPV UASs used in Ukraine, requires skill and training. Third, the rigging of munitions onto the UAS and maintenance—including 3-D printing parts for repairs and modification—requires its own expertise.[45] Fourth, particularly in contested environments with a hostile EW capability, management of the radio signals between the

operator and the UAS is key, including the requirement for deploying, protecting, and integrating radio repeater stations.[46]

These benefits clearly indicate that, like the Armed Forces of Ukraine, the U.S. Army should at least assign dedicated UAS operators within units and should likely create a new MOS, if not a new branch, to operate them.[47] These UAS operators can exist in a standalone company within brigade elements like the Ukrainians do or reside as small sections within the battalion, company, or even platoon-sized elements.[48] Whatever the ultimate allocation, the Army needs to begin training and dedicating personnel to UAS operations immediately. Simply giving troops a predeployment crash course on operating a UAS may work for steady-state operations at fixed locations but will not lend itself to success on a rapidly evolving, decentralized, moving battlefield against an adversary that can easily adapt and employ UASs against us.

Effective C-UASs and the Decline of Groups 4 and 5 UAS in Ukraine

Success on today's battlefield clearly requires widespread employment and integration of UASs. But just as important as adding this new capability is countering an adversary's UASs. While the UAS threat has been known for years and has become explicitly obvious in the last two years, the Army still lacks significant EW equipment fielded and ready to use across the force to counter Groups 1–5 UAS.

Countering Groups 4 and 5 UAS likely requires a combination of EW and SHORAD capabilities. As mentioned, Ukraine's Bayraktar TB-2 UAS have largely disappeared from the battlefield or are at least taking on a less direct role. As the theater has matured since the initial full-scale invasion, Russia has effectively employed EW systems and air defense that can effectively negate the high-altitude, easily observable Groups 4 and 5 UAS like the TB-2.[49] Another C-UAS capability is FPV UASs themselves. Ukrainian forces have turned to using FPV UASs against Russian RISTA UASs such as the Zala drone. In a number of videos posted online, Ukraine's forces have showcased such drone-on-drone combat in which the FPV UAS flies into or close to an enemy UAS and then detonates the payload.[50] Chalk up another benefit to equipping Army units with specialized UAS equipment and personnel.

Countering Groups 1–3 sUAS can be a bit more complicated. Because of their smaller size, they are even less likely to be detected by radar and are physically smaller and quieter than Groups 4 and 5 UAS. However, almost all UASs—currently, at least—rely on a radio link to their controller, making them susceptible to jamming and detection based on the radio signal they emit. The estimates of how many Ukrainian and Russian UASs are effectively jammed, disabled, or negated by EW are impossible to confirm, but some estimates range as high as 75 percent.[51]

Employing such an EW system requires extensive equipment to deploy in-depth and possibly across a wide front—just as traditional air defense forces need to be across maneuver units. In Ukraine, both sides use purpose-built systems, including truck-mounted EW systems, handheld EW systems like Dronebuster guns, and even homemade EW systems.[52] There is no doubt that U.S. Army units at brigade-and-below echelons lack such integrated and comprehensive systems to effectively counter UASs, including FPV UASs.

Furthermore, the need for individual C-sUAS capability is key at the platoon or even squad level, regardless of what EW assets a higher headquarters might possess. Even if only a small percentage of UASs make it through an integrated EW wall, their ever-increasing lethality mandates additional protection. This is especially true as FPV UASs are increasingly able to utilize artificial intelligence that can allow them to lock on or even find and identify a target independently, making the need for a radio link to an operator redundant or unnecessary.[53] In one telling example from the war in Ukraine, a Russian soldier detected an incoming FPV UAS based on a small radio scanner, which detected the UAS's radio signal. The soldier then used a shotgun to down the UAS, which later detonated harmlessly (at least, harmless to the intercepting soldier).[54] There may be multiple options for the exact solution of how to add a C-sUAS capability to small teams, but some sort of direct kinetic capability, like a shotgun along with individual EW systems or at least detectors, can greatly improve a squad's survival on the modern battlefield.

The Army's current rollout of C-sUAS capabilities has been slow and inadequate in numbers. In late 2023, the Joint Counter-UAS Office announced that two of the eighteen Army divisions had received an initial

Ukrainian gunners received the first SHARK unmanned aircraft system from the Come Back Alive Foundation in March 2023. (Screenshot from YouTube)

batch of C-sUAS capabilities.[55] But while the systems fielded in these division kits are diverse, they are not in adequate numbers for the entirety of a division's area of operations. For example, one division is expected to field "20 Modi devices, 10 Smart Shooter devices, 10 Bal Chatri devices, and 20 Dronebuster devices."[56] And, the Army is leaving it up to the fielded units "to decide how to assign soldiers to operate the weapons" and to do so regardless of MOS.[57] While those four systems are an effective mix of C-sUAS capabilities, the quantity is more appropriate for a single brigade, or even a battalion. Of course, we can expect new C-sUASs with a better, more lethal mix of detection with kinetic and nonkinetic counters to be developed and fielded. But even those systems will require supplementation with individual, soldier-borne C-sUAS capabilities that are spread throughout the formation.

And even if the replacement equipment comes relatively soon in defense acquisition cycles—normally around seven years—using and integrating C-sUASs today will not only help protect soldiers for today's battlefield but will also initiate the development of tactics and C-sUAS knowledge across the force.[58] The creation of dedicated C-UAS batteries within SHORAD battalions is also a step in the right direction, equipping them with C-UAS kinetic defense assets such as the Low, Slow, Small, UAS Integrated Defeat System, including the highly effective Coyote system.[59] But this transition will also inevitably occur slowly and still does not obviate the need for individual, organic C-sUAS capability at the lowest echelons. One C-UAS battery per division cannot protect the entire division area of operations.

C-UAS training is slowly building in Army formations, including basic combat training.[60] The training and doctrinal changes need to be comprehensive and applied across the force. Every soldier is a C-sUAS soldier and must also protect themselves with passive air defense measures. While the Army's new M-SHORAD (Maneuver–Short Range Air Defense) systems are adding additional C-sUAS capabilities, including the use of the 30 mm autocannon and eventually a directed energy laser system, that capability does not absolve a Bradley gunner from the ability to competently use their autocannon against an enemy UAS, as Ukraine has done.[61] Doctrinal changes are slow, but everything—from vehicle movements to preparation of defensive sites to establishment of firing positions or communications relay sites—requires consideration of C-sUASs and protection.[62]

UASs Continue to Feed and Dominate the Information Fight

Last year, direct images of Ukrainian and Azeri Bayraktar TB-2s observing and striking enemy formations, vehicles, and air defenses were published on official government channels and were very popular watches. In Ukraine, feeds from sUASs directing fires or dropping grenades and other munitions onto the enemy also seized the public mind, again through official government channels.[63] In year two, that trend continued unabated. It also evolved to include FPV UAS feeds from an observing RISTA UAS and the FPV's onboard camera.[64] While such videos existed during year one, they have become more common as both sides have increased their use and integration of FPV UASs.

One interesting development of unmanned systems and the information domain has been with Ukraine's naval drones in the Black Sea. Ukraine has regularly published videos of their naval drone successes, damaging and sinking Russian ships in the Black Sea.[65] Similarly to FPV UASs, these naval drones—including the "Magura V5"—are packed with explosives and ram or come very close to their target before detonating, damaging, and possibly sinking the target ship.[66]

The success of these attacks, along with Ukraine's state-sponsored media blitz of the dramatic footage, have given the Russian navy a significant loss alongside a public relations nightmare. First, Russia has lost approximately a third of its Black Sea Fleet to a combination of Ukrainian naval drone attacks and other strikes, forcing them to withdraw from their blockade of western Ukrainian ports and forward ports in Crimea.[67] Second, in the information domain, Ukraine's boat drones have made a mockery of the Black Sea Fleet, spawning memes and the classic refrain that the fleet is losing to a country with no navy.[68] Clearly, the advent of large-scale unmanned naval vessels are having a significant impact in the conflict, both from a tactical standpoint and from a larger, strategic messaging view.[69]

The significance of naval drones in the information fight is just one example. Russia and Ukraine continue to advertise the success of their UASs and seek to downplay or counter the other side's UAS successes. Defense planners need to consider the impact of an adversary's use of UAS successes and the direct footage documenting strikes against the United States and its allies. Even a relatively unskilled, small, and minimally funded insurgent group can easily acquire UASs and spread online clips to showcase their successes.[70] Especially if the U.S. Army is unprepared for the next conflict's use of UASs and sUASs against them, our next enemy will be able to easily exploit their successes in the information domain by publishing drone footage and publicizing their UAS dominance.

Conclusion

In December 2004, Secretary of Defense Donald Rumsfeld was rightly ridiculed for his response to a question regarding the lack of armor for Army vehicles in Iraq after improvised explosive devices and insurgent attacks caused substantial casualties. Rumsfeld answered, "You go to war with the Army you have, not the Army you might want."[71] While clearly an inadequate response from a political and planning perspective, Rumsfeld was plainly correct. We cannot choose when the next conflict—large or small—will start; when it does, we will fight with what we have—and sorely miss what we lack.

Today, we have no excuse not to avoid another gaffe of unpreparedness, this time for UAS integration and C-UASs, and certainly not by the planned 2030 redesign of Army divisions.[72] The lessons from the war in Ukraine and worldwide concerning UASs are clearly evident—they're intentionally broadcast and advertised in the information domain. They've been going on for over two years alone in Ukraine. All these lessons are based on the publicly available information. The question of adding UAS and C-UAS capabilities rapidly and comprehensively to the Army, along with the necessary training, integration, and doctrinal updates, is the same as if we could have added counter-improvised explosive device training, systems, and protection in 2003. The public embarrassment would be even worse here, as Americans would see—daily, unremittingly—videos of American soldiers, vehicles, and aircraft losing against cheap, modified UASs and FPV UASs, no matter our adversary. Not only can the United States not afford to lose first contact with the enemy from a strategic vantage, but public support and morale for the war effort may also not survive such a shock, imperiling the Nation's ability to prosecute the war.[73] ■

Notes

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2. Ibid., 29.

3. Ibid., 26.

4. A. Wess Mitchell, "America Is a Heartbeat Away from a War It Could Lose," *Foreign Policy*, 16 November 2023, https://foreignpolicy.com/2023/11/16/us-russia-china-gaza-ukraine-world-war-defense-security-strategy/.

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6. Stacie Pettyjohn, "Drones Are Transforming the Battlefield in Ukraine but in an Evolutionary Fashion," War on the Rocks, 5 March 2024, https://warontherocks.com/2024/03/drones-are-transforming-the-battlefield-in-ukraine-but-in-an-evolutionary-fashion/.

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