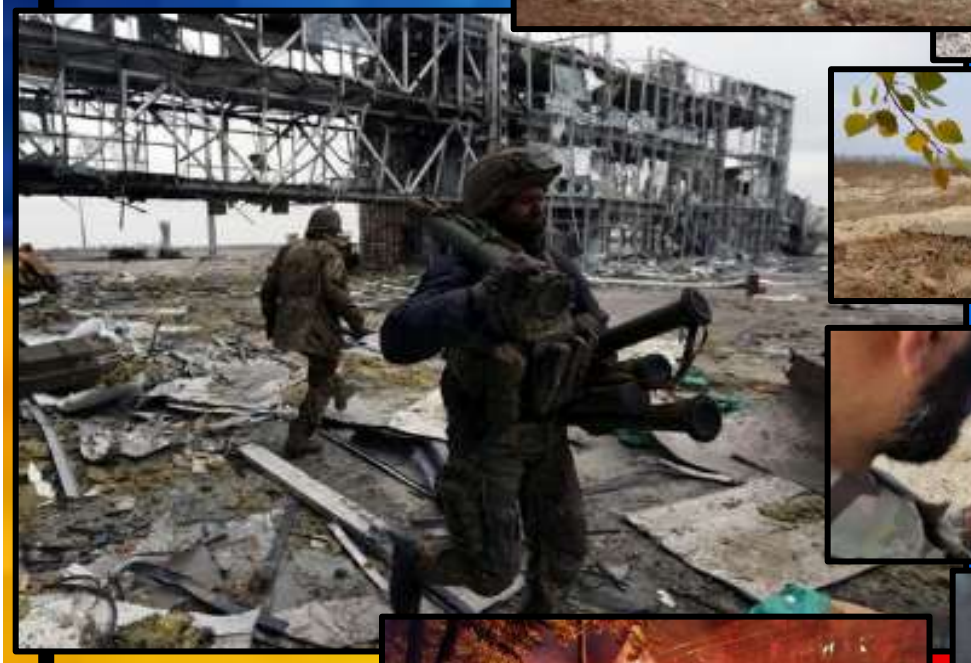
Asymmetric Warfare Group

RUSSIAN NEW GENERATION WARFARE HANDBOOK







Version 1: December 2016

A handbook for U.S. Army formations to increase awareness of Russian tactics, near-peer capabilities, and current U.S. non-material solutions to mitigate the threat posed by Russian proxies.

(U) Table of Contents

(U) FOREWORD

(U) As the American Army fought in Iraq and Afghanistan, it became the best tactical level counter insurgency force of the modern era. America's enemies, however, did not rest. Russia observed the transformation of the American Army and began a transformation of their own. This new military barely resembles its former Soviet self. Wielding a sophisticated blend of Unmanned Aircraft Systems (UAS), electronic warfare (EW) jamming equipment, and long range rocket artillery, it took the Soviet model out of the 1980s and into the 21st Century.

(U) Ukraine's 2014 Euromaidan Revolution overthrew a corrupt Russian supported president and threatened to place a pro-European government in power on the very outskirts of the Russian Federation. In March 2014, Russia occupied Ukraine's Crimea with SPETsNAZ units in a virtually bloodless operation. SPETsNAZ then infiltrated into the Donbas region, fomenting unrest and sparking a pro-Russian insurgency.

(U) Over the next few months, the Ukrainian military and volunteer militia fought back rather successfully. They pushed the separatists back to the very border with Russia. Then everything changed. Russian regular troops with heavy equipment attacked across their border and fought a series of encirclement battles resulting in hundreds of Ukrainian troops killed and the Ukrainian Anti-Terror Operation teetering on the brink of defeat.

(U) How do we combat this enemy? America has not encountered this type of conflict for nearly a generation and needs to transform to fight and win in complex maneuver warfare. Several factors contribute to potential challenges U.S. formations may face in such a conflict: It has been several years since we deployed large numbers of troops in combat in Iraq or Afghanistan. Our junior leaders, both officers and enlisted, have less and less combat experience. Our equipment has been designed to combat an insurgency, not an enemy with potential overmatch. How do we protect our troops from unmanned aerial vehicles (UAVs), communications and GPS jamming, and layered air defense networks?

(U) This handbook attempts to examine the tactics used by Russia in Ukraine as the military component of their New Generation Warfare doctrine. We will attempt to describe their capabilities and applications of combat power. Finally, this handbook will present recommendations for U.S. Battalions and Brigade Combat Teams to counter these Russian methods of war. The war in Ukraine is still ongoing. The Russian Forces are still involved in Syria and continue to improve from their successes and shortfalls. We, as American Soldiers, must do the same. As the saying goes, "Only fools learn from their mistakes. The wise man learns from the mistakes of others."

Asymmetric Warfare Group

(U) PURPOSE

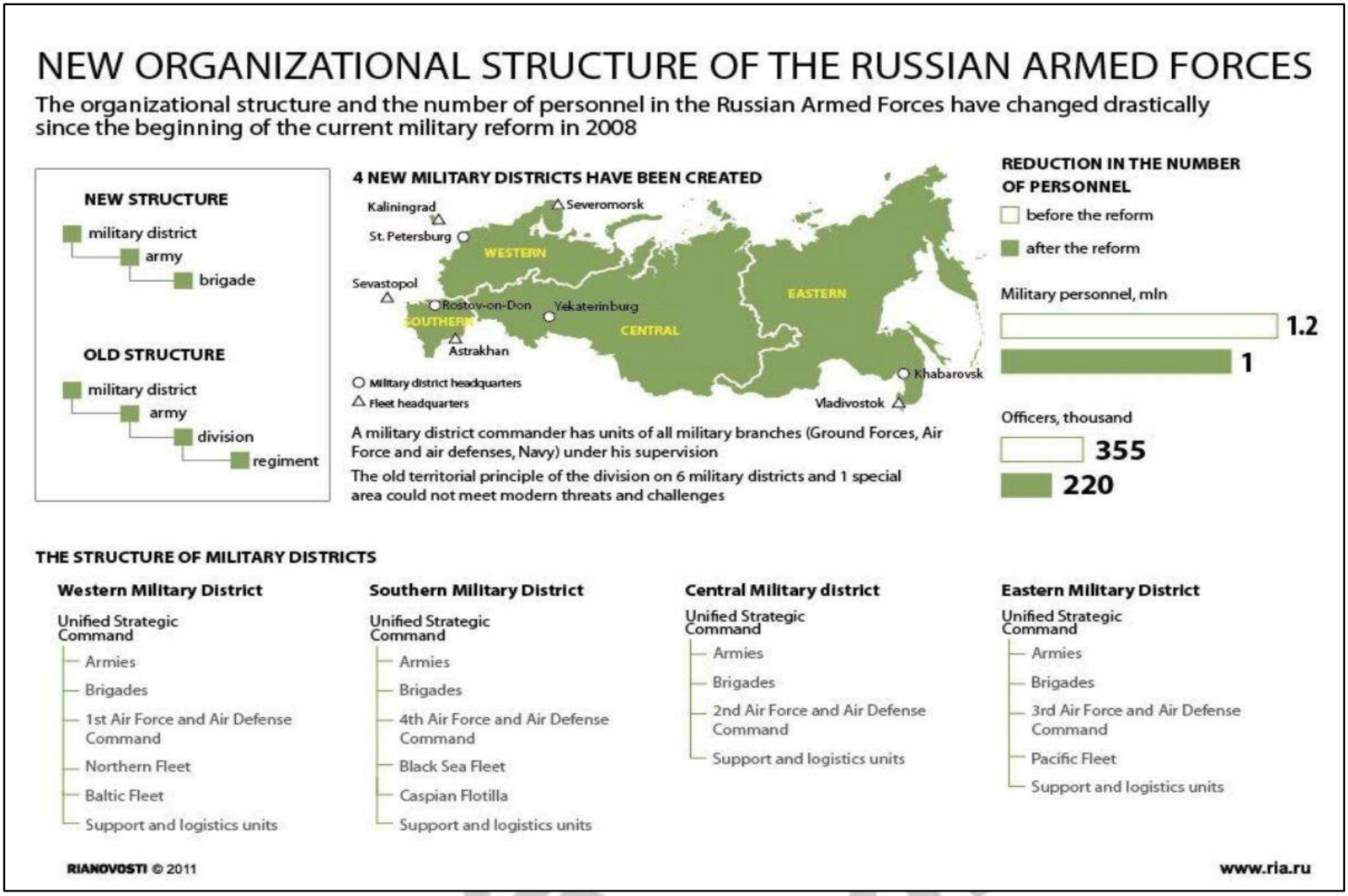
(U) Beginning in February of 2014, Russian Forces occupied and annexed the Crimean peninsula leading to the near dissolution of Ukraine's Navy. Separatist forces, enabled by Russian military support, began a conflict in Eastern Ukraine resulting in large amounts of the country turning into a war zone. Over twenty four months later, Ukraine finds itself in a situation that has all the makings of a frozen conflict. The Minsk II ceasefire agreement has stymied offensive operations on the separatist side and any offensive taken by the Ukrainian Armed Forces (UAF) will embolden Russia and provide "probable cause" for recourse and reinvigorated separatist support.

(U) As the global community became more aware of the circumstances, western nations provided assistance to the UAF in order to accomplish three things: modernize the UAF doctrine, provide necessary equipment to level the playing field, and build Ukrainian institutional capacity to help train their forces in western military standards. The training effort is well under way with many countries providing assistance in areas such as medical, logistics, and staff training; as well as training entire battalions in more modernized western tactics. While the training and assistance efforts are progressing, U.S Forces should now begin contemplating how *our* formations should best prepare themselves for the threats that the Ukrainian Armed Forces (UAF) face and identify gaps within our own doctrine.

(U) The majority of this handbook will be centered on the Russian threat and how Russian Led Separatist Forces (RLSF) conducted operations in Eastern Ukraine since March of 2014. Leaders at all levels are starting to realize that U.S. engagements during the Global War on Terrorism have created a force less than prepared to face a peer/near-peer conflict. The RLSF's application and layering of their systems increases accuracy and lethality while simultaneously degrading their opponent's capabilities. This has led to the U.S. Army taking a closer look at our force and identifying numerous capability gaps within training and technology that formerly ensured U.S. overmatch.

(U) Certain things have been bred into today's Soldier and dictate how we see the battlefield. We own the night, the air, have qualitative numerical superiority, our technology is the best in the world etc. The assumption that we will have these capabilities is inherent to every planning process the Army conducts. Unfortunately, these are not assumptions we can continue to safely make for our Soldiers in preparing for future conflicts. Training center rotations must be focused on exposing formations to new threats and prioritize learning over winning the rotation. This will bring back the basic skills our Army focused on for years and before we lose the existing combat expertise within our force.

(U) The overarching purpose of this handbook will be to identify training priorities that are not currently a focus area within our ranks. By providing commanders and senior enlisted leaders with possible training gaps within our force, leaders will begin thinking about the threat as it exists today in Eastern Europe. Our focus at the operational and tactical levels should not be on the "newest kit," but what we have to do in order to achieve success without it. The current era of a budget constrained Army means that we must outthink our opponent and capitalize on his weaknesses. This handbook is the beginning to provide the necessary insights to inform our current force while simultaneously creating best practices that units can share and expand upon.



(U) Figure 1: Russian Forces Modernization Infographic

Chapter 1:

(U) Russian Organization and Threat Tactics, Techniques, and Procedures

(U) Understanding the Environment

(U) Since the collapse of the Soviet Union, a number of conflicts and reforms have shaped the Russian military into what it is today. Russia has observed the American lessons learned in Iraq and Afghanistan, as well as their own from the 2008 invasion of Georgia, and applied these to the development of their forces. Several key changes have been implemented under Vladimir Putin (the current President of the Russian Federation) in the previous decade. These include a rapid modernization and increased complexity of equipment, attempts to professionalize military education, and a restructuring of the military to a more expeditionary model in order to project Russian influence into Europe, the Middle East, and Asia.

(U) The current state of Russia's military is a modernizing force with an increasingly technological character. It aligns its units and capabilities to satisfy a mission requirement. Russia's use of Battalion Tactical Groups (BTGs) gives Russia the capability to project its forces regionally with high speed and intensity to achieve desired tactical, operational, and strategic goals[1]. This focus on smaller expeditionary operations within Russia's regional sphere of influence means a more agile and modular force than during the Cold War and even during the Chechnya conflict in the 1990's. This was noticeably on display in their seizure of Crimea and the current conflict in Eastern Ukraine.

(U) Russia has one of the highest military spending budgets in the world. While this is nowhere near the same real-dollar amount as the United States, Russia's military development and investment has resulted in a significant increase in technical capabilities and personnel reformations. To make up for inadequate individual soldier training, the Russian military relies mainly on either motorized or mechanized units. This allows them to compensate for their lower skill in maneuver warfare with massive firepower. Some current and developing aspects of Russian military vehicles focus on eliminating human components and replacing them with a mechanism, such as the autoloader on tanks and *Boyevaya Mashina Pekhoty* (Infantry Fighting Vehicle/BMPs. This is cheaper than training, housing, and paying soldiers, which allows the Russian military to invest more in firepower. However, Russia has made significant strides to modernize its military force and adapt it to use more sophisticated technologies. This involves significant investment into soldiers and a more professional soldier force[2].

(U) Russia has tried to professionalize its force by investing in contracted soldiers (volunteers). The majority of Russia's military consists of conscripts drafted for 1 year service periods. By the time these conscripts receive training and are sent to a unit, they may only have 6-8 months left before being demobilized. This severely limits the quality of the average Russian soldier and unit as a whole. Professional soldiers inherently have more experience and training than the 1 year conscripts that circulate out of the formations every 6 months. Professionalization efforts have been a large focus area for Russia for years, but are still a significant challenge.

[1] Grau, L. L. (1989). *The Soviet Combined Arms Battalion - Reorganization for Tactical Flexibility.* Ft. Levenworth, Kansas: DTIC.

[2] Thornton, R. (2011). *Military Modernization and the Russian Ground Forces.* Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute.

(U) The primary maneuver element favored by the Russian military is the battalion, organized as a Battalion Tactical Group. The BTG is significant because the Tactical Group is built around its mission. It can be augmented with any enabler to facilitate its mission. BTGs are usually used as reinforcements in strategically vital engagements and held in reserve until they are needed.

(U) Russian Ground forces have updated their military doctrine to reflect these numerous changes in their organization, equipment, and tactics. Their new doctrine views the military as part of a broader national whole of government approach to warfare. This "Gerasimov Doctrine," named after the current Russian Chief of the General Staff, is outside the scope of this work. However, at the tactical level Russia still refers to doctrine as an "ustav," or mandate, which informs commanders and tactical decision makers on *how* to conduct their operations. The most recent editions have begun to include sketches and proposed solutions to tactical problems. This approach to doctrine as a science, rather than an art, is a holdover from Soviet doctrinal methodology and part of the Russian military culture[3].

(U) Gerasimov Doctrine

"The doctrine posits that the rules of war have changed, that there is a "blurring of the lines between war and peace," and that "nonmilitary means of achieving military and strategic goals has grown and, in many cases, exceeded the power of weapons in their effectiveness." *Douglas Farah, The CIPHER Brief*

(U) Figure 2: General of the Army Valeri Gerasimov

(U) ASYMMETRIC WARFARE

(U) Over the past 15 plus years, U.S. formations have become familiar with the term "asymmetric warfare or tactics." Because of the nature of Iraq and Afghanistan, many have come to see this as a new approach to warfare. Or as a strategy between two opponents of drastically different strengths, usually used by the weaker opponent i.e. the U.S. and the Taliban or Al Qaida, with the U.S. being technologically and financially superior to both of its opponents.

(U) An apt description of Asymmetric approaches and thinking appeared in Dr. Rod Thornton's publication "Asymmetric Warfare: Threat and Response in the Twenty First Century":

"The September 11 attack was perhaps the supreme example of what has come to be known as 'asymmetric warfare'. This phrase is one that is now dominating the lexicon of military and security forces around the developed world. At its simplest, asymmetric warfare is violent action undertaken by the 'have-nots' against the 'haves' whereby the have-nots, by the state or sub-state actors, seek to generate profound effects – at all levels of warfare (however defined), from the

(U) Dr. Rod Thornton

Dr. Rod Thornton is a prior service British Army infantry Officer with service in Germany, Cyprus, Northern Ireland and Bosnia. He studied Russian and Serbo-Croat and then took two masters degrees. His PhD was from the University of Birmingham and involved a comparison of British, Russian and US peace support operations. He has several publication on Asymmetric and Counter Insurgency Warfare and Easter Europe.

(U) Figure 3: Dr. Rod Thornton

[3] Ministry of Defense, Russian Federation. (2005). *Battle Directives on the Preparation and Conduct of a Combined Armes Battle, Section 3: Squad, Platoon, and Tank Section.* Moscow: Military Publication.

tactical to strategic – by employing their own specific relative advantages against the vulnerabilities of much stronger opponents. Often this will mean that the weak will use the methods that lie outside the 'norms' of warfare, methods that are radically different. It is the element of difference that lies at the heart of asymmetric approaches…

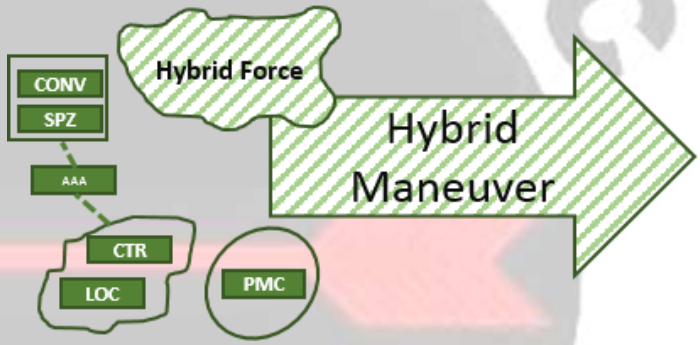
… asymmetric does not mean unequal. 'Symmetrical' implies a mirror image; sometimes the image can be smaller, but nonetheless a likeness exists. 'Asymmetrical' implies a relationship that can not be considered alike… And here it is useful to point out that asymmetric techniques can also be applied by the stronger power[4]."

(U) HYBRID MANEUVER

(U) During the Georgian and Ukrainian crises, Russia has developed a new approach to their operations, which is widely referred to as Russian New Generation Warfare (RNGW), 4th Generation Warfare, Hybrid War, etc. In truth, Russia has been able to redefine their objective and efficiently apply

(U) Hybrid Force Composition:

CONV: Conventional forces
SPZ: SpetsNaz Russian version of SOF forces
AAA: Advise Assist Accompany Teams
CTR: Contracted forces from outside the area of operations; usually sign a contract and serve along LOC forces
LOC: Militarized local population
PMC: Private Military Contractor



(U) Figure 4: Hybrid Force Composition

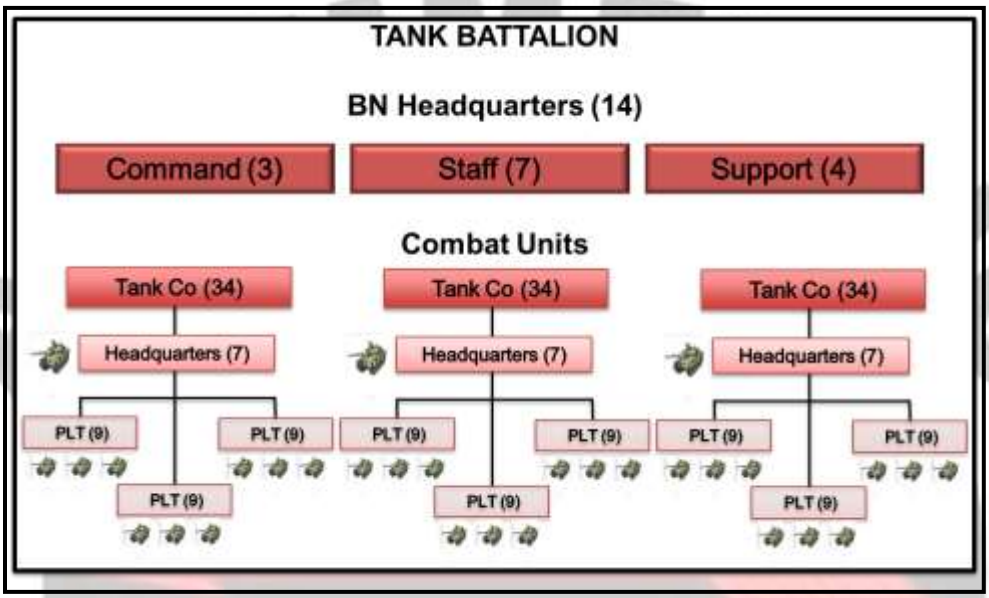
instruments of national power to achieve that objective. The new objective is not victory in a conflict, but *regime change*. Because the new objective is the change of an entire system of government, the RNGW approach can use any lever of influence in their reach to achieve this change. Not all regime changes have to be resolved with a military option, but when a military lever is activated, it is done by, with, and through segments of the local population. The involvement of locals gives validity to military action on the world stage. This makes it appear like a popular action, and produces the Hybrid Maneuver concept that we see Russia employing in Ukraine, Syria, and elsewhere. With the current state of Russia's Security Force Assistance (SFA), it is safe to assume that a Hybrid Maneuver force will become common with a Russian footprint.

(U) During Hybrid Maneuver, the brunt of the fighting will be borne by locally organized units. These units fall under the government structure of the Russian supported regime, and have their own military organization which mirrors or mimics Russian Forces. These forces will have basic equipment, provided by Russian "Advise, Assist, and Accompany" (AAA) teams. AAA teams synchronize the Hybrid force's operations by embedding Russian officers in the Hybrid force structure. Hybrid maneuver focuses on the local effort conducting the majority of the fighting with support from Russian conventional forces when the mission has strategic and operational importance.

[4] Thornton, D. R. (2007). *Asymmetric Warfare: threat and response in the twenty first century.* Malden, MA: Polity Press.

(U) During hybrid maneuver in Eastern Ukraine, the unit of choice has become the BTG. This is in spite of the fact that Russia has identified weaknesses in the BTG structure and are moving back towards a divisional model. A BTG is a tailored force, centered on the mission it will be executing. This force usually consists of three core units: infantry, armor, and artillery. It will be further augmented with other assets such as Electronic Warfare (EW), Air Defense Artillery (ADA), and other capabilities under the battalion commander's control.

(U) Russian Conventional Organization

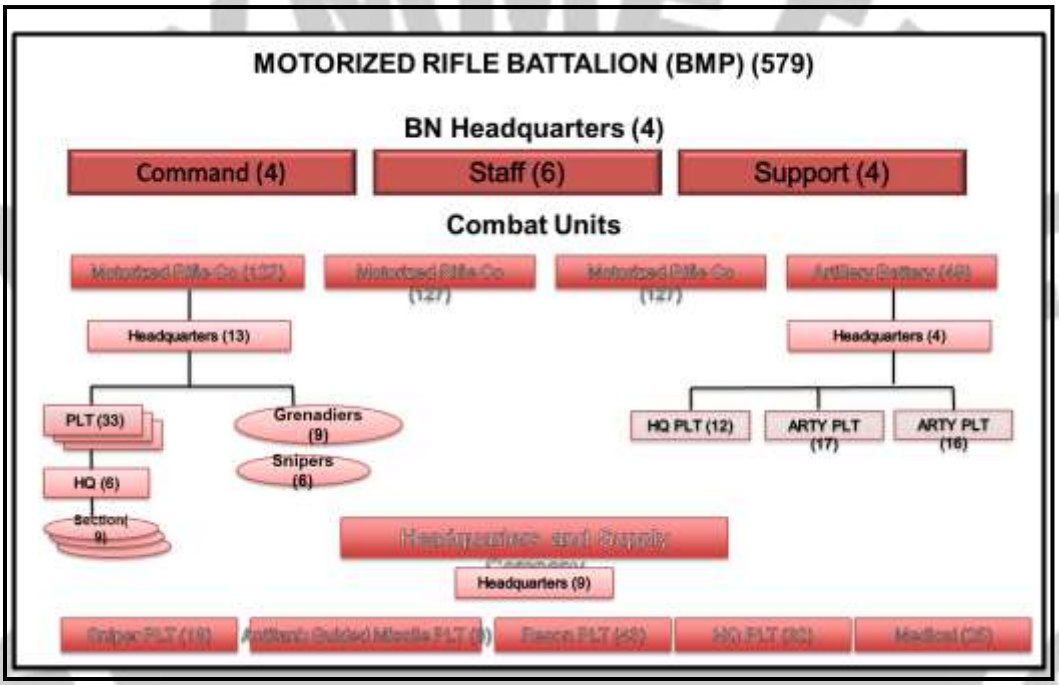


(U//FOUO) Figure 5: Core Tank Battalion

T90 SERIES
CREW: 3 PAX
MAX SPEED ROAD/OFF-ROAD: 65kmh/45kmh
MAIN ARMAMENT: 125 mm Smoothbore
AUXILLARY WEAPONS: 7.62 mm COAX MG, 12.7mm NSVT AA MG
COMBAT LOAD: Main Gun-43rds, 7.62-2000rds, 12.7-300rds

T80 SERIES
CREW: 3 PAX
MAX SPEED ROAD/OFF-ROAD: 70kmh/48kmh
MAIN ARMAMENT: 125 mm Smoothbore
AUXILLARY WEAPONS: 7.62 mm COAX MG, 12.7mm NSVT AA MG
COMBAT LOAD: Main Gun-45rds, 7.62-1250rds, 12.7-500rds

T72 SERIES
CREW: 3 PAX
MAX SPEED ROAD/OFF-ROAD: 60kmh/45kmh
MAIN ARMAMENT: 125 mm Smoothbore
AUXILLARY WEAPONS: 7.62 mm COAX MG, 12.7mm NSVT AA MG
COMBAT LOAD: Main Gun-45rds, 7.62-2000rds, 12.7-300rds



(U//FOUO) Figure 6: Core Motorized or Mechanized Rifle Battalion

BTR-90
CREW: 3 PAX/7 passengers
MAX SPEED ROAD/OFF-ROAD: 100kmh/50kmh
MAIN ARMAMENT: 30 MM Automatic Gun, 2A42 or 30 mm AGL
AUXILLARY WEAPONS: 7.62 mm PKT MG
COMBAT LOAD: 30 mm-500rds/AGL-400 rds, 7.62-2000rds

BMP-3M
CREW: 3 PAX/7 passengers
MAX SPEED ROAD/OFF-ROAD: 70kmh/45kmh
MAIN ARMAMENT: 100 mm Rifled Gun 2A70
AUXILLARY WEAPONS: 7.62 mm COAX MG
COMBAT LOAD: Main Gun-48rds, 7.62-2000rds

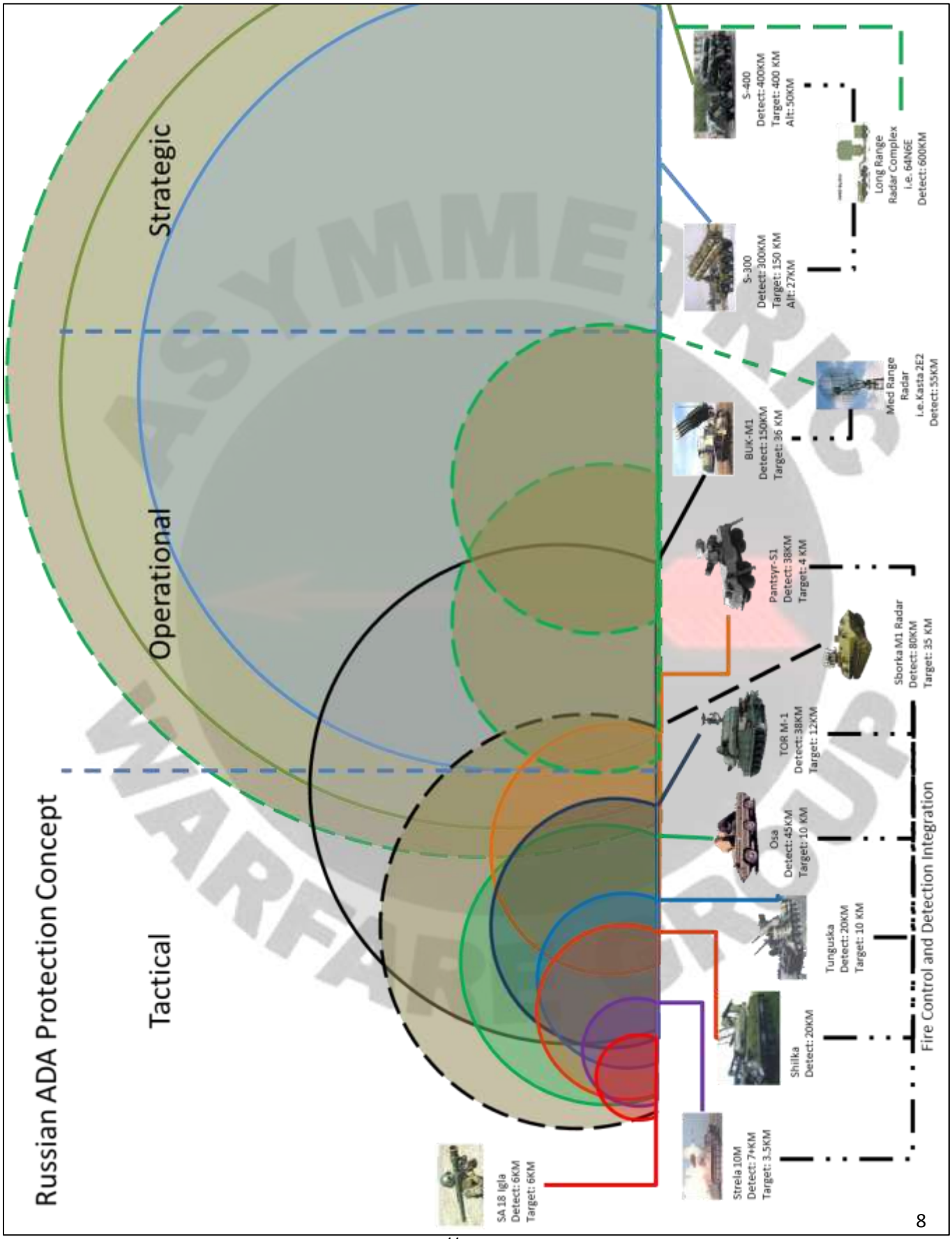
9P162 KORNET
CREW: 2-3 PAX
MAX SPEED ROAD/OFF-ROAD: 70kmh/45kmh
MAIN ARMAMENT: KORNET ATGM
RATE OF FIRE: 3-4 missiles per minute
COMBAT LOAD: 16 LR rounds, 10-16 HEAT, up to 6 HE

(U) Anti-Access/Area Denial (A2/AD) Systems

(U) The U.S. has held air superiority in conflicts dating back to the Korean War. Since enemies have not challenged this in recent memory, U.S. forces have come to take air superiority for granted. Even during the Vietnam War, U.S. aircraft were able to provide air support and overwhelm the North Vietnamese Air Force. Since then, the Army uses air assets for reconnaissance, transportation, fire support, and medical evacuation. In Iraq and Afghanistan, light infantry units have come to depend on air support with extended station time and clear communication lines to the forces on the ground.

(U) Compared to other militaries in the world, air power is simply the biggest enabler for U.S. forces. Because of this, Russia has gone to great lengths to develop air defense capabilities on strategic, operational, and tactical levels to deny American's the use of this capability. Russian air defense capabilities exist at the battalion level and higher, and can also be used task organized down to the company level if the situation requires it.

(U) Russia's air defense capabilities consist of direct fire, missile, and EW platforms. Strategic assets are large and cumbersome systems, but are capable of providing air defense to ground units up to a 300 kilometer radius. On the operational and tactical levels, Russian missile air defense systems are self-propelled, either on tracked or wheeled vehicles. The majority of current systems consist of single vehicle models that have the self-contained ability to conduct target acquisition, plot a firing solution, and engage a target. At the tactical level, battalion's possess shoulder fired missiles (MANPADS) and light tracked or wheeled ADA systems.



(U) Figure 7: Russian ADA Protection Concept

(U) MANPADS are one of the most significant threats to U.S. formations. Commanders can conduct Suppression of Enemy Air Defense (SEAD) missions to shape their AO, but the ability to conduct SEAD against MANPADS carried within the line infantry formations is extremely limited. This is especially true if these systems are used in urban areas around civilians as is the case in Eastern Ukraine. Within the first few months of the conflict in Donetsk and Lugansk, Ukraine, the Ukrainian military lost several helicopters, ground attack aircraft, and even a fully loaded troop transport all to MANPAD systems.

(U) Russia uses a very dense network of air defense systems that overlap in layers to increase their protective capabilities. Gaps in coverage can also be filled by new EW systems that confuse incoming missiles, overload ordnance guidance modules, or cause premature detonation of electronic fuses. Faced with this type of air defense network, U.S. formations will, at best, be able to achieve brief or momentary air superiority to support ground troops. Russian Air Defense capabilities will also severely impact aerial resupply and medical evacuation (MEDEVAC). Though Russia publicly announces its adherence to the Geneva Convention, and recognizes internationally protected symbols, this does not mean that Russia's automated Air Defense systems will recognize a MEDEVAC as an off limits target. This is similar to the case of Malaysian Airline's Flight MH-17 which was shot down by a BUK missile system over Ukraine in July 2014.

SA- 11 Gadfly (BuK-M1-2)
PRIMARY PURPOSE: Protect task forces and installations from attacks of prospective high speed tactical and strategic aircraft under intensive electronic counter-action
DETECTION RANGE: Up to 20 km
MAX ENGAGEMENT RANGE: Up to 15 km
SIMULTANEOUSLY ENGAGED TGTS: Up to 6
REACTION TIME: Up to 18 sec

SA-22 Greyhound (Pantsyr-S1)
CREW: 3 PAX
ARMAMENT: 2 X 30mm Guns, 12 Missiles
MAX ROAD SPEED: 90 kph
AIRCRAFT DETECTION RANGE: 30 km
ENGAGEMENT RANGE: 3 km for Guns, 20 km for Missiles

SA-10 Grumble (S-300VM)
PRIMARY PURPOSE: Protect task forces from mass attacks of med range-theatre level ballistic missiles as well as strategic and tactical aircraft.
DETECTION RANGE: Up to 250 km
SIMULTANEOUSLY ENGAGED TGTS: Up to 24
CONTINUOUS OPERATION TIME: Up to 48 hrs

SA-21 Growler (S-400)
CREW: Variable
MISSILE CAPACITY: 4
MAX ROAD SPEED: 70 kph
MISSILE RANGE: Up to 250 km
MISSILE ALTITUDE: Up to 27 km
SUPPORT VEHICLES: 55K6E Mobile Command Post, 91N6E Big Bird Radar, 92N6E Fire Control Radar
NUMBER OF SIMULTANEOUS TARGETS: 36

TOR-M1
MAX RANGE: 25 km
SIMULTANEOUS DETECTED/TRACKED TGTS: 48
SIMULTANEOUS ENGAGEMENTS: 2
NUMBER OF SAMs: 8 CV Mounted
REACTION TIME AFTER DETECTION: 5-8 sec

55Zh6UE NEBO-UE
PRIMARY PUROSE: Designed to detect, automatically track, and determine coordinates/flight parameters of air targets including low-observable, small size, and ballistic. Feeds information to integrated air defense units.
DETECTION RANGE: 310 km
ACCURACY: Not more than 10 min of angle
NUMBER OF TARGET TRACKS: Not less than 100

(U) Infantry Systems

(U) Russian soldier displaying Ratnik System.

(U) Russian infantry and Spetsnaz units are being modernized in parallel with other key Russian systems. The Russian "Ratnik" program, similar to Land Warrior, is their answer to American and NATO advancements in body armor and communications. Like Land Warrior, Ratnik is a very ambitious attempt to update basic soldier systems that have been around since the late 1970s.

(U) While Ratnik is attempting to implement cutting edge technologies, budget constraints and combat realities appear to be limiting the type and number of fielded soldier systems. The main focus now is on updates to individual body armor systems and modular basic load accessories. Other key aspects include updates to weapon optics, replacing the AK-74 rifle with the new AK-12 rifle, and encrypted communications equipment for squad leaders and above. Russian units are fielded these updates based on their status, with Spetsnaz and the airborne forces already receiving most of the basic upgrades. It is these "elite" units that are the first ones Russia deploys as in Crimea and Syria. Modernization of Russia's infantry and trooper equipment is representative of their attempts to professionalize and begin to invest into soldiers as part of a changing operational concept

(U) The photo insert depicts the personal equipment of a Russian SPETsNAZ soldier, presumably an engineer, who was killed in Syria in March 2016. While the majority of the Russian army is not as lavishly equipped, this equipment demonstrates how far Russian soldiers have come since their fighting in Chechnya. This soldier had a well-stocked individual first aid kit, redundant land navigation aids, a hook-line pull and metal detector for IEDs, and personal radio. There are also numerous commercial off the shelf (COTS) items including the GPS. The AK-74 features a modern adjustable buttstock, suppressor, and thermal sights with attached red dot for close quarters shooting. Interestingly, the item to the right of the radio is a MIB multi-function munition. The MIB is a type of tripwire land mine that is designed to also be employed as a hand grenade. All of this equipment is well camouflaged and tailored to meet the needs of the Spetsnaz soldier.

(U) Russian soldier basic load

(U) Russian Tactics, Techniques, and Procedures (TTP).

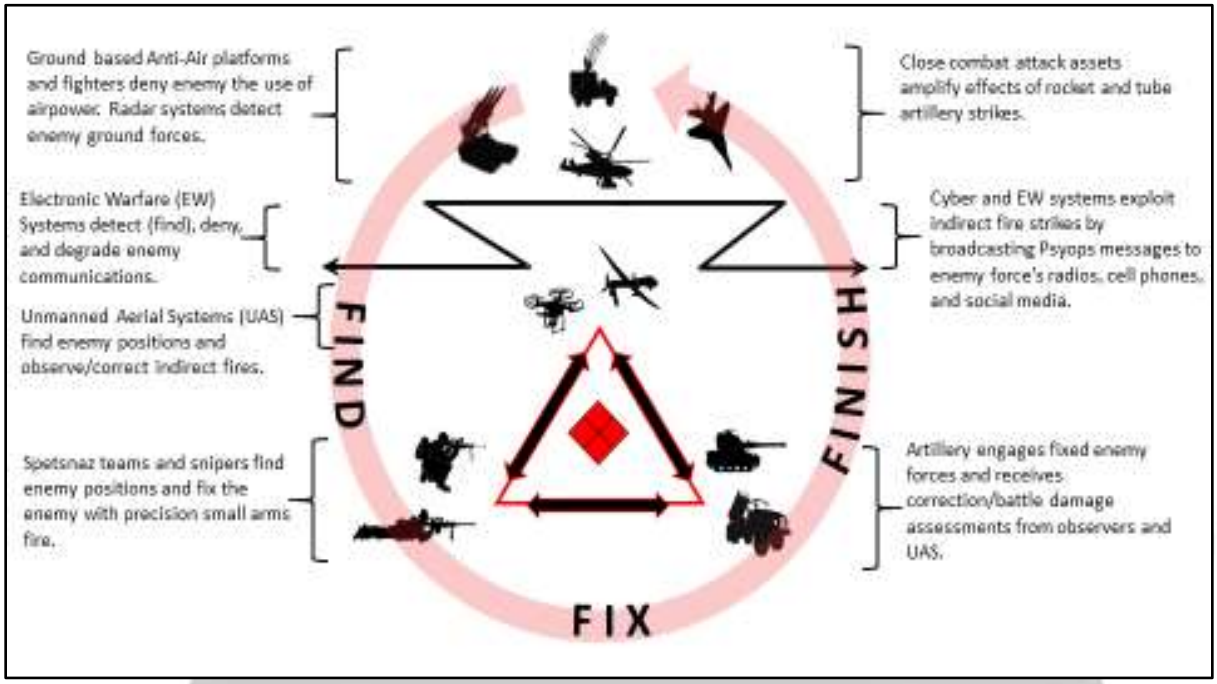
(U) TARGET ACQUISITION

(U) At the tactical level, Russian Forces' approach to modern warfare can be summed up through "target acquisition." The advent of persistent ISR coverage over an area of operations has drastically changed the way American forces fight. This can occur through numerous sensors, both aerial and ground based, that give commanders a real time update on the operational environment.

(U) Russian Forces have taken this concept and applied it to their doctrine. The Russian concept consists of the capability to deliver devastating indirect fires, while maintaining stand off from their enemy, and protecting their own forces through the use of ADA and EW. Once adequate fires have been delivered, ground forces begin to maneuver, preferably with an armored element to secure time and space for indirect fire and protection platforms to move forward and begin the cycle again.

(U) Russian Forces have the capability to use numerous layered sensors to feed into their target acquisition cycle. Multiple UAS platforms, combined with Spetsnaz teams, relay target data to artillery systems for action.

(U) An overarching layer of electronic warfare systems protects this target acquisition cycle. These EW platforms can collect electromagnetic signals and determine their location, thereby providing



(U) Figure 8: Graphic Representation of the Russian Target Acquisition Cycle

an additional acquisition capability. They can also degrade and deny enemy communications to compound Russian Forces' efforts at fixing an opponent prior to an artillery strike. Above this layer is the anti-air umbrella composed of ground based surface to air systems as well as aerial platforms.

(U) The most widely encountered Fix TTP throughout Eastern Ukraine is the Trip Wire Initiated Grenade (TWIG). The most common method of employment is in conjunction with the Russian F1 Hand Grenade. Often, these trip wires are made from salvaging battlefield debris. Old guide wire, from an Anti-Tank guided missile, provide the RLSF with a ready supply of trip wire that looks like normal battlefield debris. RLSF also use fishing line dipped in motor oil to blend in to the normal color patterns of the environment.

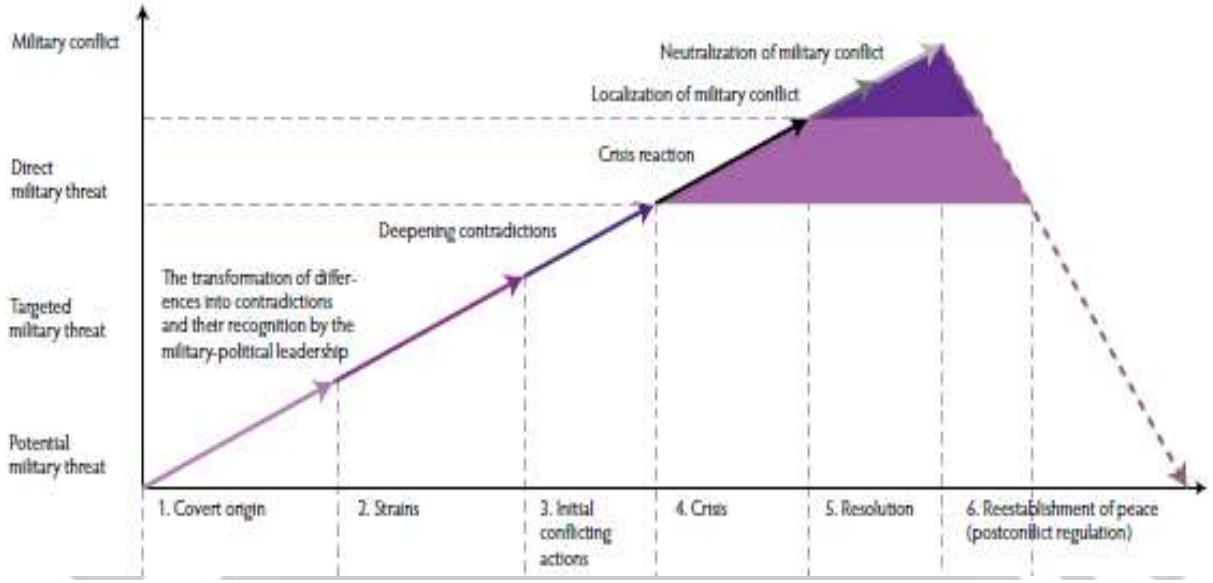
(U) Operationally, these systems overlay to create an anti-access / area denial (A2AD) bubble that denies both terrain and airspace to an opponent from the platoon to the corps level. Through target acquisition, Russian Forces are able to bring these systems to bear on a multitude of targets, thereby offsetting any numerical advantage the enemy may possess. This approach was specifically designed to deal with NATO technological and air superiority, and has proven deadly effective in Eastern Ukraine.

(U) If used alone, UAS, EW, Snipers, and TWIGs can be mitigated, but when used in conjunction, they are able to fix a unit long enough to deliver devastating artillery Fire Strikes.

(U) PROXY FORCES

(U) Before discussing A2AD and Target Acquisition in detail, it is worth taking a step back and understanding preparation of the environment. A key aspect of recent Russian campaigns is the preparation of the human terrain during Phase I and Phase II operations. Targeting or exploiting an adversary's population is their primary objective prior to open hostilities. This creates several effects that Russia relies on for the success of their campaign: confusion, deniability, and manpower.

(U) During the Crimean Campaign, Russian Forces, disguised and interspersed among locals,



(U) Figure 9: Russian Phases of Conflict

created havoc with Ukrainian decision making. No one in the Ukrainian government understood that a full Russian invasion was taking place. Instead, the world news witnessed "local self-defense" units seizing airports and government buildings. Some of these forces were unmarked Spetsnaz and Russian regulars, however others were from other non-official paramilitary groups. This all produced deniability of Russian involvement, making it appear as a local internal conflict rather than a Russian invasion, and paralyzed Ukrainian government decision making.

(U) Another major aspect to using proxy forces is to conserve Russian manpower. If Russia can coerce the local population, they can then use them as frontline troops instead of their own forces. By using locals, along with imported mercenaries from Russia and former Soviet republics, Russia is able to conserve their trained forces for major operations. The use of proxy forces also serves to strengthen Russia's narrative and Information Operations on a world stage. It is also important to note that Russia doesn't count or publicize casualties from the local or contracted fighter populations.

(U) Russian Information Operations specifically target segments of the enemy population with a Russian narrative. This compels some locals to fight for a promised future on the Russian side. Actual Crimean self-defense groups and the separatists in Eastern Ukraine fighting for "Novorossiya" are perfect examples of this. These proxy forces are generally idealistic and require very little support except for brief reaffirmations of Russia's commitment to their cause. Russia provides this affirmation of their commitment through weaponized Security Forces Assistance and Accompanying missions with Russian SPETsNAZ elements. Other proxies simply fight for money, which Russia can easily provide by itself, or by promising the proxies spoils of war from towns they capture.

(U) Figure 10: Russian Level of Influence Near and Abroad

(U) The use of proxies also effects Russian Force projection. By using proxies, Russia only needs to deploy the forces necessary to augment proxy forces, mainly consisting of contractors. Contractors, similar to in the U.S. experience in Iraq, can be better trained former soldiers and are used to reinforce the main effort in battles. The proxies support the contractors and regular Russian Forces and also perform mundane duties like checkpoint security and manning front lines blockposts. This is the same concept U.S. forces tried during the Iraq and Afghanistan conflict by training and accompanying less capable Host Nation Forces.

(U) Figure 11: Russian Private Military Contractor Infographic

(U) ELECTRONIC WARFARE

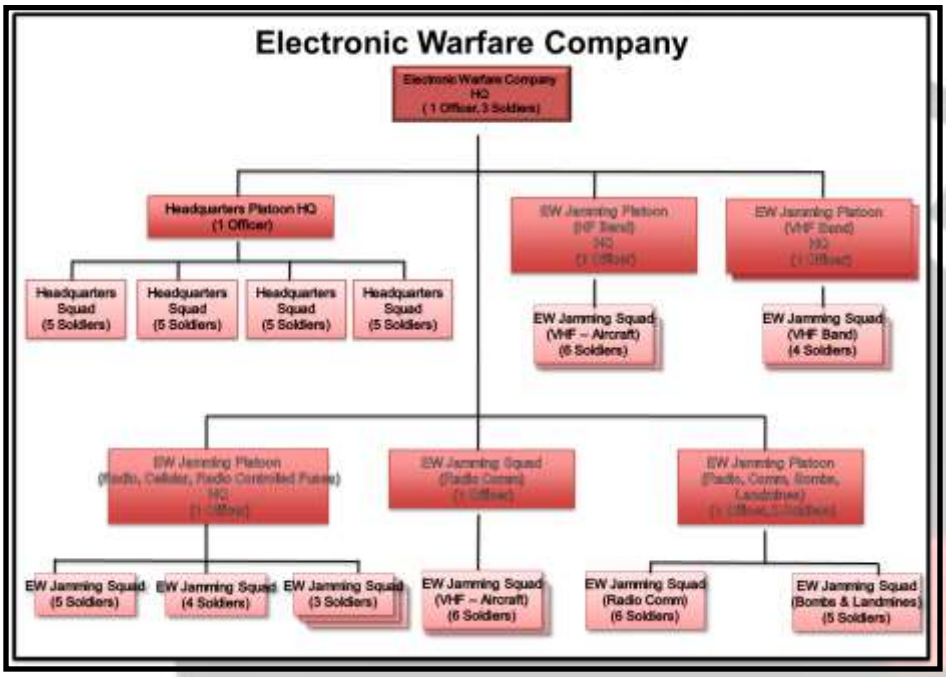
(U//FOUO) The key cornerstone of U.S. and NATO methodology is maneuver warfare. Maneuver warfare depends on communication and synchronization of assets. The U.S. has communication infrastructure down to the four man Infantry Fire Team level and the ability to battle track those formations with almost real-time speed. When everything functions as designed, these smaller formations can achieve much larger effects than their Russian equivalent.

SPR-2 (RTUT)
PRIMARY PURPOSE: Counter Artillery/Defeat Radio Proximity Fuse Munitions
COVERAGE AREA: 50 hectares
INTO/OUT OF ACTION: Not more than 4 min
CREW REQUIREMENTS: 2 PAX

R330 SERIES
PRIMARY PURPOSE: Electronic Jamming/DF
SEARCH COVERAGE: 360 Degrees
DF ERROR: Not more than 3 degrees
EFFECTIVE SIGNALS: AM, FM, CW, SSB, ISB, FSK, PSK, PFT
CREW: 4 PAX
SETUP/TAKEDOWN: 20/15 minutes

(U) Because of maneuver warfare's reliance on communication, Russia has invested heavily in Electronic Warfare systems which are capable of shutting down communications and signals across a broad spectrum. This capability is grouped under the concept of the Radio Electronic Battery (REB). The REB's objective is to degrade or deny that vital capability to tactical and operational commanders. The Russians do not have a one size fits all approach, but rather possess a suite of platforms, each designed to counter a U.S. communications capability. The Russians layer these systems to shut down FM, SATCOM, cellular, GPS, and other signals. In Eastern Ukraine, these EW systems have proved devastating to Ukrainian radio communications, are capable of jamming unmanned aircraft systems (UAS), and can broadcast false GPS signals (an effect called spoofing). The U.S. reliance on robust communication infrastructure and GPS navigation means that a sudden interruption of this capability, even for a short duration, can be disastrous to an operation.

(U) The Russian EW systems also possess the ability to perform direction finding of electromagnetic signals. When paired with a fire direction center, the Russians have the ability to call accurate fire on enemy forces based on these electronic intercepts. In another example from Eastern Ukraine, a Ukrainian army unit was broadcasting a radio message when it received accurate artillery fire, sustaining multiple casualties. The Ukrainian unit then received text messages on their cell phones from the Russian Led Separatist commander asking how they liked the artillery.



(U//FOUO) Figure 12: Electronic Warfare Company

(U) To complement these capabilities, Russia has made significant efforts to produce a similar communication network to U.S. capabilities. This system integrates GPS and tactical radios and has a publicly disclosed operating range of 10km on a tactical level. Russia's EW platforms are designed with these new systems in mind and allow the use of Russian radios and communication assets while denying U.S. capabilities.

(U//FOUO) Certain platforms are used for protection, emitting an EW signal designed to overload electronic fuses on incoming fires. Guided munitions, both direct and indirect, will either detonate early or change course once they come in contact with one of these EW bubbles.

(U) Electro Radio Batteries can be given objectives on all three levels of war. The use of ERB platforms has been integrated into the Russian concept of tactical effects, depicted in the current Russian Combat Doctrine[5].

RP-377 L/LA
PRIMARY PURPOSE: Direction Finding/Monitoring
FREQUENCY RANGE: 20-2000 Detection/25-2000 Direction Finding
DIRECTION OF ERROR: Not more than 3 degrees
INTO/OUT OF ACTION: Not more than 20 min/10 min
CREW: 2-3 PAX

[5] Ministry of Defense, Russian Federation. (2005). *Battle Directives on the Preparation and Conduct of a Combined Armes Battle, Section 3: Squad, Platoon, and Tank Section.* Moscow: Military Publication.

(U) The most dangerous course of action, for U.S. mission command, is to continue operating on a one-slider CONOP, then have all communications be interrupted during the execution phase. Without our doctrine mandated planning process, with contingency planning, synchronization of assets or maneuver will become impossible. Even combat and fire support would prove to be a problem due to the possibility of fratricide, especially if close to Russian front line positions.

(U) CYBER

(U) Russia's developing capabilities have also incorporated the cyber realm. The U.S. dependence on computer networks and the amount of technology present even at the company level, create vulnerabilities to Russia's new found capabilities. Contributing factors for increased cyber-attacks are their low risk to high pay off ratio and increasingly interconnected U.S. military networks. Everyday U.S. military functions, such as Web-based or computer generated administrative and logistical operations or activities. This creates a significant vulnerability to cyber intrusion and network degradation.

(U//FOUO) Cyber vs EW

(U//FOUO) Cyber is an emerging capability for combat commanders and currently come with added restrictions due to the nature of that capability. Commanders should be aware that similar effects can be achieved with EW as with cyber if properly articulated during the planning and orders production process. Commanders should become familiar with these concepts and plan with respect to their *effects* in the battle space instead of what *assets* are used.

(U) Cyber-attacks can effectively shape the battlefield and require very little risk on the part of the perpetrator. Since U.S. formations operate under self-imposed restrictions, like ethical hacking and prioritizing protective measures over offensives in the cyber realm, they are limited in their capabilities compared to Russian counterparts.

(U//FOUO) Russia is also able to reach into its nonmilitary cyber expertise to complement their military capabilities. The Kremlin cooperates with criminal hacker groups and the Russian government employs thousands of professional hackers as part of their whole of government Information Operations strategy. This severely outnumbers U.S. military cyber capabilities and means that U.S. brigades could be subjected to cyber-attacks from pro-Russian sympathizers in countries not even involved in a conflict.

(U) As with the degraded communication environment, Cyber Meaconing Intrusion, Jamming and Intercept (MIJI) is a very real threat to U.S. formations.

(U) EN MASSE SNIPER EMPLOYMENT

(U) Russia has proven the ability to fix Ukrainian tactical formations by employing sniper teams en masse. Russia has used this tactic since the Second World War. The current Russian tactical doctrine describes sniper duties as follows:

The Sniper must:

Be proficient in the means and ways of his implementation during combat actions and have his combat skills be second nature in all operating environments;

Know his weapons, maintain it in fully mission capable state, and be able to use it to deliver accurate fire using various methods;

Observe the battlefield, find and evaluate targets, and under orders from the commander destroy the most valuable targets;

When operating in pairs, conduct reconnaissance, perform target identification and correct indirect fire;

Be able to navigate, skillfully employ the terrains protective and masking properties for quick and stealthy movement in order to occupy the most advantageous firing positions;[6]

(U) The Russian sniper is a specially selected and skilled soldier who, as described above, is part of the target acquisition system. The skills displayed by these elements are far beyond the "snipers" that U.S. formations encountered in Iraq and Afghanistan. There is a great distinction between the Designated Marksman at the platoon level, who is armed with a simple Dragunov sniper rifle (SVD), and a well-trained sniper team. The current Russian teams have access to night vision sights, suppressors, and sophisticated weapons comparable to rifles in the U.S. inventory. They also use modern cartridges, such as the 338 Lapua Magnum and 300 Winchester Magnum.

(U) During the rapid modernization of the Russian army after 2008, the Russian army made large purchases of western made sniper rifles to include the Barret and Arctic Warfare Magnum (AWM). The Russian company ORSIS also makes the T-5000, one of the most capable bolt action sniper rifles in the world. These are currently the signature weapons used by Russian snipers[7].

(U//FOUO) Snipers in Eastern Europe

(U//FOUO) As the section suggests, the capabilities of a sniper in a Russian contingent is far more advanced than the precision shooters U.S. formations have encountered over the last 15 years. The Sniper Defeat methodology developed as a result of the Iraq/ Afghanistan addressed precision shooters used in that theater. GTA 90-01-013 is the current starting point for Commanders in the development of Sniper Defeat TTPs. Commanders should acknowledge that GTA 90-01-013 was developed to defeat precision shooters, not institutionally trained snipers with near peer capabilities.

(U) Russian Forces in Ukraine have employed snipers in elements up to platoon size. These units will operate on a small frontage of only several hundred meters. They will layer their assets in roughly three ranks with spacing determined by range of weapons systems and the terrain. The first rank will be composed of proxy forces trained as designated marksmen. Behind them will be a mixed force of better trained proxies/mercenaries and Russian soldiers. The final rank consists of highly trained snipers and will be the best equipped. All of these ranks focus on one target area together.

(U) Objectives of a sniper team during en masse employments are to hinder or channelize movement of tactical formations and then direct artillery fire on prioritized targets. Several sniper teams will work together to corral an enemy formation into a target area making delivery of indirect fire easy and devastating. Russian snipers also channelize units into ambushes and obstacles such minefields or armored checkpoints.

(U) Employment of snipers en masse increases the psychological stress on an operating force and can fix its location. Sniper employment is also used to delay an enemy unit and create time for Russian Forces to maneuver. Because of their special training and small unit size, as well as the large use of suppressors, tracking and reaction to these snipers is problematic.

[6] ibid

[7] Thornton, R. (2011). *Military Modernization and the Russian Ground Forces.* Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute.

(U) ARTILLERY "FIRE STRIKES"

(U) In Russian Military culture, artillery is called the "God of War." Whereas U.S. forces rely on artillery to support maneuver, the Russians take the opposite approach: maneuver supports artillery.

(U) Russian BM-21 Grad battery firing in the Donbass

Artillery is the decisive finishing arm for the Russian Army. BTGs are mostly used to secure ground so that artillery forces can be effectively emplaced and employed against enemy forces. To stress the importance of artillery in Russian formations, most Russian units have some kind of indirect fire capability, whether in the form of heavy mortars, Automatic Grenade Launchers, or self-propelled artillery units. During the maneuver phase of the Ukrainian conflict, Russian Led Separatist Forces and their Russian counterparts preferred to create maximum standoff using natural or manmade obstacles from Ukrainian units to leverage their indirect fire superiority.

Russian artillery has five methods of fire:

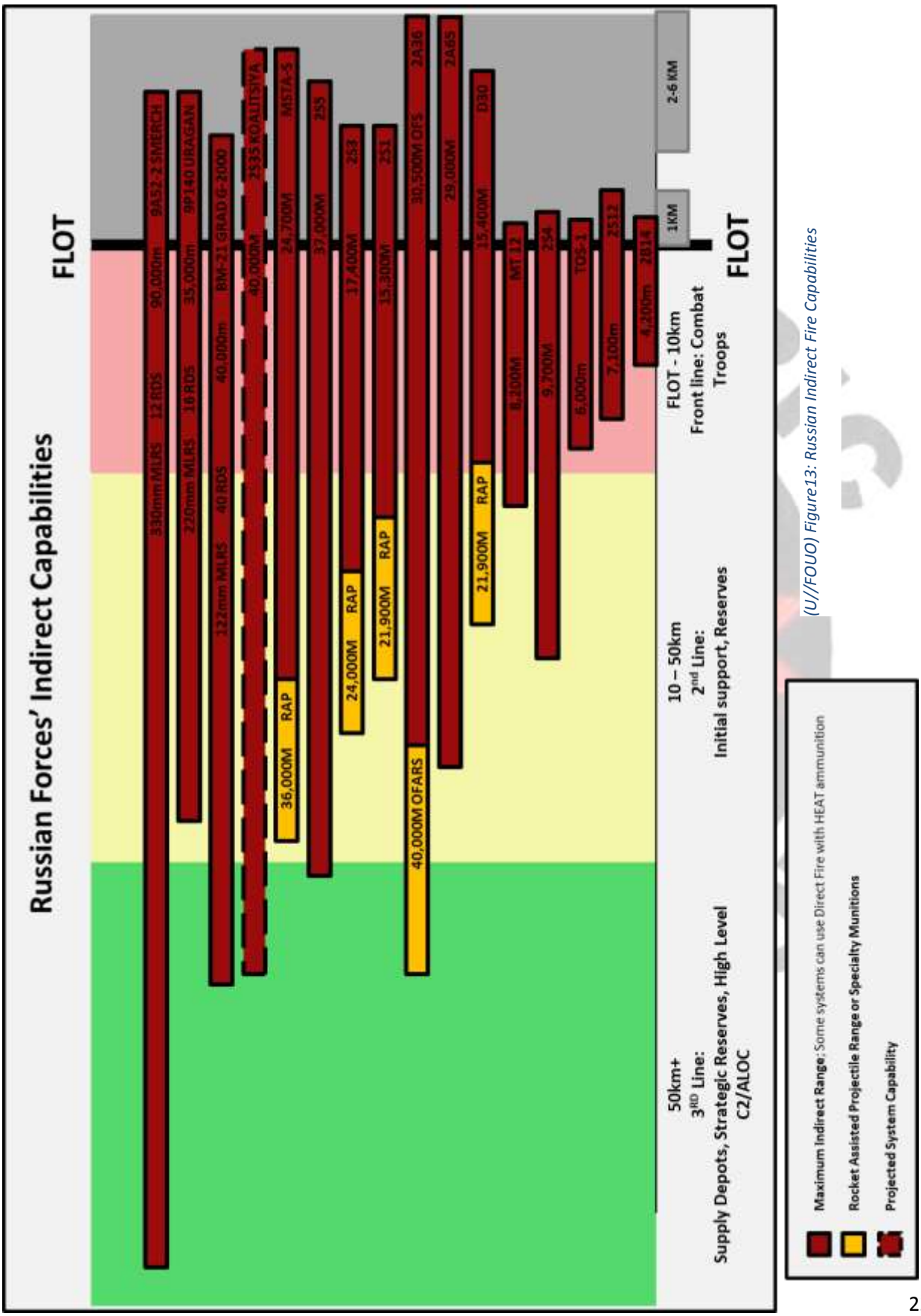
- Single Target Fire: fires directed against self-acquired targets or direct fire.
- Concentrated Fire: fires employed by more than one artillery system directed against the same target.
- Fixed Protective Curtain Fires: a continuous fire barrage which is delivered on one of, or simultaneously on, several fronts of an attacking enemy.
- Moving Curtain Fires: a continuous fire barrage created on one or multiple fronts along the axis of advance of the enemy's armored units, which can later be directed at follow on locations depending on the withdrawal of the enemy's advance.
- Accompanying Fires: the concentration of fires on targets located in front of an advancing friendly force, their flanks, and can later be directed at the enemy's rear area targets.

Russian Target Effects Classification:

- Annihilation: Kill probability of 70-90 %
- Demolition: physical destruction of installations or positions
- Suppression: requires 30% destruction of targets

Harassing fires: focus on disrupting enemy operations[8]

[8] MAJ Holcomb, J. (1988). *Soviet Artillery Utilization.* Ft. Leavenworth, KS: DTIC.

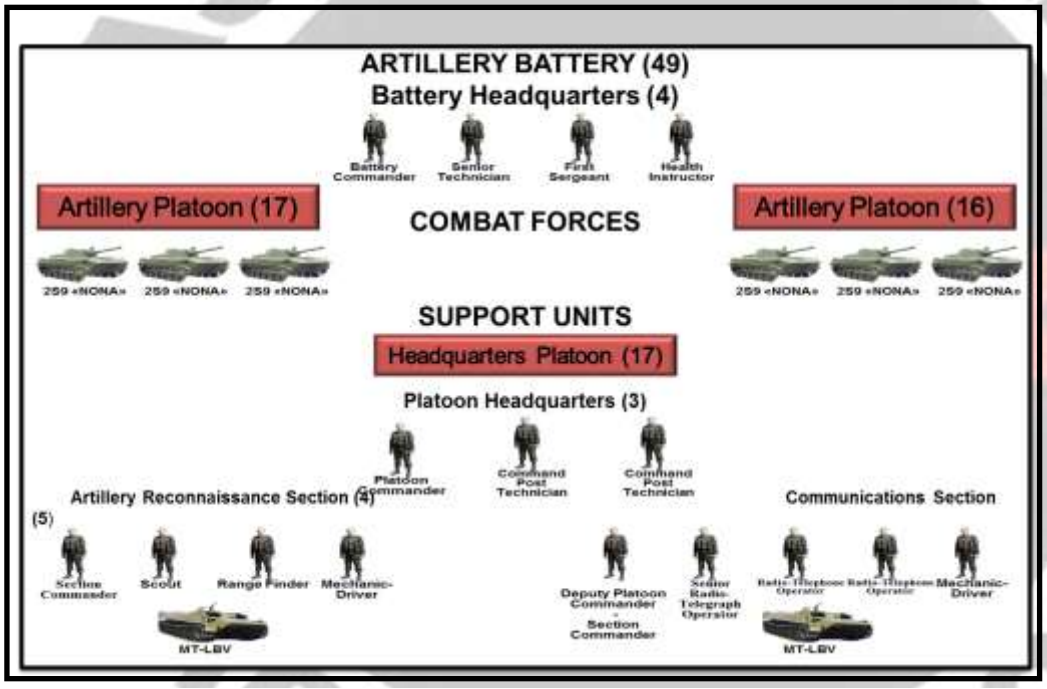


(U//FOUO) Figure13: Russian Indirect Fire Capabilities

(U) Russian artillery and rocket artillery prefer the use of volume with some accuracy compared to the U.S. preference for precision. Russian artillery still operates on the old principle of mass, and can cover an area greater than 1 km^2 with fire. These types of fires can be directed against a static or moving enemy. Because of the volume and intensity of fire it is possible to inflict massive casualties against a moving armored enemy just based on the sheer volume of fire.

(U) Russia has also made vast improvements in its artillery capabilities. Rocket artillery has a range of munitions that include high explosive fragmentary, Dual Purpose Improved Conventional Munitions (DPICM: a top attack anti-armor munition), as well as mine laying charges, thermobaric, nuclear, and chemical munitions. Several of these munitions, depending on the system have GPS or laser guidance capabilities.

(U) According to Russian doctrine, artillery is usually located 2-6 km behind the front in sets of three guns per battery[9]. Self-propelled artillery, such as the 2S1 and the 2S3 can accompany advancing troops and provide direct fire support as an assault gun. In defensive positions, all Russian gun systems have built in capabilities to engage targets with direct fire and have specially designed High-explosive anti-tank (HEAT) rounds for artillery systems. This has proven especially effective in Eastern Ukraine as used by both Ukrainian forces and Russian separatists.



(U//FOUO) Figure 14: Core Artillery Battery

(U) The employment of UAS by Russian Forces adds another dimension to their fires capability. In Eastern Ukraine, Russian Forces have demonstrated their ability to direct and adjust fires with their drones. Ukrainian forces have repeatedly seen a systematic approach by the Russians to acquire a target with a UAS. A high level UAS will identify a Ukrainian target. It will then pass off that target to another lower level UAS to determine the target coordinates. Then the Russians will adjust their fire with the UAS based on the initial artillery strikes. The total time for this process can be as little as 10-15 minutes.

[9] ibid

Rocket and Artillery Systems

SS-26 Stone (Iskander-M)
CREW: 3 PAX
MISSILE CAPACITY: 1-2 depending on model
MAX ROAD SPEED: 70 kph
MISSILE RANGE: 400-500 km
WARHEAD TYPE: Conventional/Nuclear
WARHEAD WEIGHT: 480 kg

2S35 Koalitsija-SV SP Artillery
CREW: 3 PAX
MAX ROAD SPEED: 60 kph
MAIN ARMAMENT: 152 mm Howitzer
CANNON RANGE: approx. 30-40 km
RATE OF FIRE: 8 rpm
AUX WEAPON: 12.7 mm MG
COMBAT LOAD: 152mm-60-70 rds

TOS-1A FLAMETHROWER
CREW: 3 PAX
MAX ROAD SPEED: 60 kph
MAIN ARMAMENT: 24 x 220 mm Thermobaric Rockets
ROCKET RANGE: 0.4 - 6 km
RATE OF FIRE: 24 rockets in 6 - 12 seconds
RELOAD TIME: Unknown

BM-21 MLRS
CREW: 6 PAX
MAX ROAD SPEED: 75 kph
MAIN ARMAMENT: 40 x 122 mm Rockets
ROCKET RANGE: 1.6 - 21 km
RATE OF FIRE: 40 rockets in 20 seconds
RELOAD TIME: 7 minutes

2S19 Msta-S SP Artillery
CREW: 5 PAX
MAX ROAD SPEED: 60 kph
MAIN ARMAMENT: 152 mm Howitzer
CANNON RANGE: approx.25 km
RATE OF FIRE: 7-8 rpm
AUX WEAPON: 12.7 mm MG
COMBAT LOAD: 152mm-50 rds, 12.7mm-300 rds

BM-27 Uragan MLRS
CREW: 4 PAX
MAX ROAD SPEED: 65 kph
MAIN ARMAMENT: 16 x 220 mm Rockets
ROCKET RANGE: 8.5 - 34 km
RATE OF FIRE: 16 rockets in 9 seconds
RELOAD TIME: 15 - 20 minutes

2S3 SP ARTILLERY
CREW: 4 PAX
SPEED ON/OFF ROAD: 60 kmh/25kmh
MAIN ARMAMENT: 152 mm Howitzer
AUX WEAPON: 7.62 mm PKT MG
COMBAT LOAD: 152mm-46 rds, 7.62-1500 rds

BM-30 Smerch MLRS
CREW: 4 PAX
MAX ROAD SPEED: 60 kph
MAIN ARMAMENT: 12 x 300 mm Rockets
ROCKET RANGE: 20 - 70 km
RATE OF FIRE: 12 rockets in 38 seconds
RELOAD TIME: 36 minutes

UNMANNED AIRCRAFT SYSTEMS

Courtesy of Vitaly V. Kuzmin

(U) ORLAN-10

- (U) Take-off weight - 15 kg
- (U) Payload weight - 6 kg
- (U) Engine - engine (gasoline A-95)
- (U) Way to start - with folding catapult
- (U) Landing- a parachute
- (U) Airspeed - 90-150 km / h
- (U) Max. flight duration - 16 hours
- (U) Max. Range- up to 140 km from the ground control station
- (U) Max. altitude above sea level - 5,000 m
- (U) Max. wind speed at the start – 10 m / s
- (U) Operating temperature range near the ground from -30 to +40 ° C

(U) One of the key pillars in the Russian Target Acquisition cycle is their use of UAS. Once again, they have observed the U.S. operate with a near permanent “eye in the sky” in Iraq and Afghanistan. This capability enabled the U.S. to coordinate assets and react to battlefield developments in real time at an operational and even strategic level. Russian Forces lagged behind the U.S. with UAS development and employment, however since the 2008 Georgian campaign have made it a priority. Their efforts have paid off, and Russia’s use of UAS has proven to be a game changer in Eastern Ukraine.

Courtesy of Wikimedia Commons

(U) FORPOST

- (U) Take-off weight - 456 kg
- (U) Payload weight - 100 kg
- (U) Engine - engine (gasoline A-95)
- (U) Max. Airspeed -204 km / h
- (U) Loiter Airspeed- 126-148 km/h
- (U) Max. flight duration - 16 hours
- (U) Max. Range- up to 250 km from the ground control station
- (U) Max. altitude above sea level - 6300 m
- (U) Payload Options:
  - (U) Infrared Video
  - (U) Daylight Video
  - (U) Laser Range Finder
  - (U) Still Camera

(U) Currently, Russian Forces in Ukraine use a variety of UAS, ranging from high altitude military systems to low level commercial grade quad-copters. Russian Forces have also been able to integrate off the shelf Tier I and II UAS into their tactical formations. The majority are used for full motion video intelligence, surveillance, and reconnaissance (ISR) purposes. Some, however, are reportedly used to collect signals intelligence (SIGINT) and as airborne EW jamming platforms. The most important use appears to be as platforms to spot and adjust artillery strikes.

(U) DOZOR-100

- (U) Take-off weight - 120 kg
- (U) Payload weight - 15 kg
- (U) Engine - engine (gasoline A-95)
- (U) Max. Airspeed -150 km / h
- (U) Loiter Airspeed- UNK
- (U) Max. flight duration - 10 hours
- (U) Max. Range- up to 100 km from the ground control station
- (U) Max. altitude above sea level - 4200
- (U) Payload Options:
  - (U) Infrared Video
  - (U) Daylight Video
  - (U) Laser Range Finder
  - (U) Still Camera

Courtesy of Tengrin News

(U//FOUO) There are several open source videos on youtube.com and liveleak.com that show Ukrainian separatist forces (ostensibly Russians) using UAS to locate an enemy position (pic) , observe artillery rounds impacting the enemy position, and then make corrections to the artillery based on the UAS feed. Ukrainians report that once they identify a low flying (under 1000 feet) UAS, they have between 10-15 minutes before their position will be hit with accurate artillery fire.

(U//FOUO) The newest Russian TTPs are to use their hexa-copter drones to drop aerial munitions. They are capable of targeting rear echelon positions, such as fuel or munitions depots, and dropping incendiary munitions, resulting in the destruction of the target. Current TTPs in Eastern Ukraine are the use of multiple UAS to drop incendiaries on front line positions. When the troops emerge from their bunkers to put out the fires, a second wave of UAS drop fragmentation grenades, killing the troops in the open.

(U//FOUO) One thing noticeably absent from Russian UAS employment is the kind of surgical drone strike that the U.S. has used to great effect in the past 15 years. Russia does not currently possess a weaponized UAS similar to a Predator, however, in Eastern Ukraine there are reports that the RLSF have weaponized small octo-copters. These non-standard UAS platforms have reportedly dropped incendiary and fragmentation grenades on Ukrainian positions. Their current preferred TTP is sending a wave of these drones to drop incendiary grenades on front line troop positions. When the Ukrainians come out of their bunkers to put out the fires, a second wave of drones drops fragmentation grenades on the now exposed soldiers. This also gives Russian Forces, through the use of proxies or special groups, the ability to conduct inexpensive, and difficult to detect, hit and run air raids deep behind the lines on munitions dumps, command posts, and other valuable targets.

Chapter 2:

(U) U.S. Strategies to Defeat and Mitigate Russian TTPs

(U) Though Russia has made significant strides to invest in their defense forces human capital, they still resemble a materiel focused force. Russia strictly controls its internal information dissemination and national news. This means that they can accept a larger amount of casualties and replenish them fairly quickly with their conscription program. The replenishment rate of service and support and 3rd and 4th line personnel is roughly 6 months, making human losses a minor factor. The destruction of materiel and supplies, however, is a much a greater problem that could disproportionally affect the operational and strategic levels of Russian operations.

(U//FOUO) In addition, the Russian Army displays key weapon systems, like electronic warfare (EW) and air defense artillery (ADA) platforms, as universal capabilities. In reality, however, these exist in limited capacity quantities. These systems are new and have not been fielded to their entire force. Generally, Russian tactics are to emplace EW and ADA assets in key operational and strategic locations then move them as soon as their mission is complete to limit their vulnerability. An adequate fielding of these systems is a long ways away for the main portion of Russian Forces.

(U) INFORMATION OPERATIONS (IO)

(U) Information Operations are a key component in Russia's military doctrine. Russia's autocratic structure means that their IO efforts are uniquely nested from the tactical level all the way to the strategic. These operations shape the battlefield, gain support within the local human terrain, and strategically gain legitimacy on the world stage.

(U) The Kremlin uses a style of mission command with their IO campaigns. Certain key themes (the defense against corrupt western values, protection of Russian nationals, etc.) act as the base for Russia's IO messages. Within those broad themes, commanders at the tactical and operational level exercise their own IO campaigns. The messages can be very simple, confusing, and even contradictory. However, the main theme, that you can trust Russia over the western European/NATO powers, is omnipresent.

(U//FOUO) Figure 15: USAREUR Analysis of Russian Messaging

(U) Russian technological advances aid their use of tactical IO. Electronic warfare devices allow Russian Forces to broadcast IO messages directly against opposing Ukrainian forces as discussed earlier with cellular text messages. These can

be very specific and directed at individuals, such as by threatening their wives and children by name, or generic and sent to entire units as was the case in Ukraine. Ukrainian soldiers received text messages on their phone with threats against their families and accurate information of family locations. Tactics such as this can have a tremendously negative psychological impact on young soldiers that are out of direct contact with their loved ones.

(U) LOGISTICS

(U) Russia's logistics system is a weakness in their armed forces. Anyone who has worked with the Afghan supply system, still somewhat modeled after the Soviet Army, can understand how and why this is a weakness. The system is highly centralized and commanders are usually limited to receiving only their authorized supply allocations, including fuel and repair parts. If a commander expends more than their tables project, then significant effort and paperwork has to go into making up the supply shortfall.

(U) The Russian supply system is much more centralized than the U.S. Army's. A battalion's supply infrastructure is separated into two parts. Class I – VIII and X are controlled by the deputy battalion commander, who acts as a liaison between the regiment and the companies. Russian companies do not have a supply infrastructure. This can be adjusted by the Battalion deputy commander who can establish that capability at the company level by assigning battalion assets to a company. Those assets are then responsible for bridging the transportation gap between the regiment and the companies, making resupply slower and more cumbersome. Class IX is an entirely different system. Repair parts are distributed by the Platoon Leader of the Mechanics Platoon at the Battalion level, who is also responsible for keeping records of distributed parts.

(U) It is yet to be seen how the recent reforms will shape Russian military supply chain management. Since 2008, the Russian Armed Forces have undergone significant restructuring designed to enable more independence of action at lower echelons. New structural changes, such as the move from a 4-tier structure to a more simplified chain consisting of strategic command - operational command – brigade, are likely to simplify overall logistics. Additionally, reforms that are underway will make deep cuts in the officer corps in favor of better enabling the NCO corps. Should these reforms be successful in the near future, logistics are likely to follow a more western-approach in allocation and distribution of military resources[10].

(U) As it currently stands, the majority of Russia's service and support personnel are conscript soldiers, serving on a 1 year term. Historically, Russia's supply infrastructure has always been plagued with embezzlement, stealing, and profiteering. This is amplified by the short conscription service time and economic struggle of Russia's economy. However, Russian policy makers have recognized the shortcomings in the conscript system and are attempting to institute a professional volunteer force. While this process will likely take some time to fully transition from conscript-based service to all-volunteers, the Russian Armed Forces are likely to see improvements in morale, independence of thought, and discipline in the near future. Additionally, government crack-downs on embezzlement and corruption stand as cornerstones of the current regime's political platform[11].

(U) Tactically, Russia's supply concepts are still based on Soviet style of thinking. This focuses on preserving materiel for larger operations and future use, rather than issuing it for immediate needs. One example of this is the Russian approach to rifle magazines. Russia includes magazines into its weapon system as part of the basic issue item (BII). For an AK-74, a Russian soldier's basic training load consists of 2 magazines of small arms and a grenade. For combat operations, soldiers will carry 4-6magazines

[10] Thornton, R. (2011). *Military Modernization and the Russian Ground Forces.* Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute

[11] ibid

and an F-1 and a RGD-5 grenades. Reload procedures taught to soldiers sometimes prioritize stowing the magazine before reloading the weapon to ensure the weapon system is complete. If Russian soldiers lose a magazine, they cannot be as easily replaced as in the U.S. system. It should be noted that the standard load out may not apply to specialized troops that are likely to be met in low-intensity or "hybrid" style conflict. *Spetsnatz* or other government troops (such as the GRU) often are allowed more freedoms to customize their ammunition load out based on their mission.

(U) Furthermore, combat resupply cannot be delivered in pre-loaded magazines. Current ammunition resupply is delivered in boxes of ammunition. Each box holds 30 rounds in the same configuration as commercial Wolf Ammunition sold in the U.S. The same holds true for the PKM machine gun, which is issued with non-disintegrating link belts of ammunition. PKM ammunition is delivered in large tin cans, each consisting of 440 rounds. Each round must be loaded individually by hand or with a portable machine crank, drastically increasing reloading times.

(U) This resupply shortfall is present in Russian Infantry Fighting Vehicles (IFV) as well. Russia has modernized their forces with the BMP-3 IFV. The BMP-3 still uses the same belts and ammunition for its coaxial 30mm gun as the older BMP-2, which is still in service with rear echelon units and border guards. Each BMP has a non-disintegrating belt that is individually loaded with the use of a press. Each vehicle carries 2 basic loads into combat, but has to stop and reload its belts once they have been expended. The reload time for a BMP-2 basic load of 500 rounds is approximately 38 minutes. Machine gun belts cannot be joined together quickly due to their link design.

(U) Long engagements will force vehicle and machine gun crews to manually reload their ammunition belts. There are many open source videos of this in Eastern Ukraine where both sides suffer significant gaps in supporting fires while they are forced to reload individual rounds into their magazines and belts. U.S. units should exploit this vulnerability as a time for maneuver.

(U) The last major weakness of the Russian supply system is safety. Russian forward ammunition dumps are quite possibly the most unsafe places in any warzone. By doctrine, there are very little storage requirements, no minimum safe areas, little munitions segregation, and many of the munitions are still from the Soviet period or early 1990s and about to expire. Fuel depots are no better. Poorly trained conscript logistics soldiers, combined with these poor storage procedures make these supply depots a tinderbox ready to explode. Russia has suffered several catastrophic supply depot fires and explosions in the past 2 years of combat in Ukraine and Syria. Priority targeting of these areas will cause a serious logistics strain on the Russian system and impact their ability to use maneuver and fires.

(U) FIRE SUPPORT

(U) Current Russian doctrine in Ustav Chapter 3, published in 2008, does not allow for lower level commanders to synchronize higher level effects. The entire concept of Russian fire support is based on overpowering the enemy and inflicting massive casualties without risk to Russian material. However, commanders do not have direct control over any fire support assets not directly subordinate to their command. These assets are still controlled by higher echelons further from the front lines. This leaves Russian front line troops vulnerable to a skilled enemy that can close distance with the Russian lines, thereby increasing the risk of fratricide by Russian artillery. The use of a mobile or a dynamic defense strategy greatly degrades Russian fire support effects.

(U) There is a lack of control between the Russian tactical and operational levels. Usually, effects are separated by time or space to make sure indirect fires do not conflict with aviation and vice versa. Targets for aviation and indirect weapons are set by higher command and look to achieve operational effects as seen during preparation of major Chechen urban centers. Troops have to wait for a

bombardment to stop and advance after volleys have ended or assets have completed their mission. This indicates a low proficiency in battle tracking which results from the Post-Soviet mission command style.

(U) Forward observers are not fully integrated into infantry battalions and cannot deliver precision fires. Concepts such as a hot gun or tactical fires do not exist in the current Russian concept of fires or maneuver. Even after their 2008 reforms, Russia still prefers the use of overwhelming firepower over precision.

(U) In 1945, during the final Russian assault on Berlin, the Russians expended 1.7 million tons of artillery ammunition against the German front line trenches. The Wehrmacht, however, used intelligence estimates to predict the Russian bombardment and displaced their forces into second and third line defenses. The entire Russian barrage fell on empty trenches, and the Soviets suffered tremendous casualties when the artillery ceased fire and the Germans reoccupied their front line. During the first Chechen war, Chechen rebels denied Russian Forces the use of indirect fires and aircraft by closing to within 200 meter of the Russian lines.

(U) Employment of indirect fire, at the battalion and below levels is usually limited to mortars and the AGS-17 grenade launcher. Russian Forces consider their mortars as regular artillery and include mortars in their artillery tube count. Artillery is usually controlled by a higher echelon command post which employs fire strikes instead of tactical fire support. Therefore, there is a gap in tactical fire support capability from rocket and tube artillery controlled by rear echelon forces. During the Chechen conflict, Chechen fighters would hug Russian lines within approximately 200 meters, thereby threatening the Russians with fratricide from a Russian artillery strike. This denied Russian Forces indirect fire support for their ground units. U.S. forces could exploit this through rapid maneuver actions.

(U) KEY SYSTEMS

(U) Russian key capabilities needed to negate U.S. advantages require a large amount of infrastructure and support. This is especially true of Russian fire support and EW capabilities.

(U) Emerging EW platforms are designed to be modular and able to accompany troops. But, while these systems may be present in the battlespace, they are by no means ever-present. The increased mobility of these systems increases the potential number deployment locations and reduces a platform's signature. However, it increases strain on fuel and maintenance needs. These platforms must produce their own power, which requires a tradeoff between operating range and the EW system's employment. This also merges multiple systems into one platform, such as transportation, power generation, the EW system itself, etc. The result is a higher chance for maintenance problems and compatibility issues.

(U) The main vulnerability with these systems is their small numbers. In order to effectively project an A2AD bubble to protect Russian BTGs in a major ground operation, Russian Forces require significant numbers of EW and Air Defense platforms. Almost all of their modern systems, especially EW platforms, are in Kaliningrad, Ukraine, and Syria. They do not have the depth of numbers needed in order to sustain system losses and still function across a broad front. Losing even one of these systems is a significant blow to Russian Forces and creates a gap in their A2AD bubble that can be exploited.

(U) PREDICATABLE MANEUVER

(U) Though Russia has very skilled and able commanders, they are constrained by a smaller budget than the U.S. This produces a need to fight asymmetrically. There conventional formations are

forced to depend on a few main units and items that are designed to negate U.S. capabilities. Since a majority of these key systems are just being fielded and have not yet permeated the force, these systems will limit the speed with which the Russian army can advance. Russian commanders must synchronize their advances based on deployments of their key systems, since any Russian Force not supported by these capabilities would quickly be blocked or destroyed.

(U) This gives U.S. commanders a sort of schedule to predict Russian maneuver and impending targets, enabling U.S. forces to counter them. By locating these systems and using fires, maneuver, or Special Forces teams to engage them, the Russians will be forced to keep shuffling their systems around the battlefield. The more time these systems are moving, the less time they are capable of emplacing and performing their combat roles.

(U) OFFICER CENTRIC FORCE

(U) During the Soviet Union, the Soviet Army relied heavily on its Officer Corps, since officers were educated and were the continuity in the force. Soldiers consisted of conscripts who would rotate out every 2 or 3 years. The rank of sergeant did not have much authority or meaning until the restructure of Russian Ground forces post Georgian War. Currently, Russia is attempting to boost its NCO corps by creating a NCO academy which is slated to produce roughly 150 NCOs a year.

(U) The quality of the unit is usually the direct representation of the officer that leads the unit. In the Soviet, post-soviet model, the officer is the subject matter expert on all things the unit has and must be trained on. Even though the current contract soldier model allows more experience to remain with the force, most of the training is still received form the officer cadre. This requirement to train Level I tasks to soldiers limits the time and effort spent on the self-development and growth of the officer corps.

(U) Russia's Ustav Chapter 3 lists a set of charges for soldiers, specialty soldiers, and leaders. The following are the expectations of a Platoon leader:

The Platoon commander is responsible for the battle readiness, preparation, arming, and maintenance in preparation for battle; the successful execution of his objective within the prescribed time; and also for the mentorship, military discipline, and moral and psychological state of his troops. The main objective of the commander is to complete his objective within the prescribed time frame. For this, the commander must have a solid understanding of: his battle objective and the concept of maneuver for his platoon, effects of his mission and the concept of maneuver; the objectives of supporting and adjacent units, forces and assets assigned to the senior mission commander, which execute their respective missions in conjunction with the platoon's actions; orienteering, recognition signals, and command relations assigned by the senior mission commander; order of battle and organization of communication[12].

(U) Though the Ustav mentions sergeants, their roles and responsibilities are not documented or outlined.

(U) In the absence of able junior leadership, most duties are left to junior officer. Some of the basic duties normally overseen by NCOs in western armies must be inspected by the officer of the unit. This includes something as mundane as replacing the Explosive Reactive Armor on a tank.

[12] Ministry of Defense, Russian Federation. (2005). *Battle Directives on the Preparation and Conduct of a Combined Armes Battle, Section 3: Squad, Platoon, and Tank Section.* Moscow: Military Publication.

(U) Absence of junior leadership restricts Russian maneuver. Because a platoon is the lowest level unit with a leader, a company is the lowest level that can execute fire and maneuver. This reduces tactical maneuver to a platoon sized frontal attack since there is not enough supervision to conduct complex maneuver. These factors also restrict dismounted infantry to within very close proximity to their vehicles. A platoon attack resembles a frontal attack accompanied by armored vehicles acting as heavy mobile machineguns. On the platoon level, very often the only difference between a “good” and “bad” Lieutenant is that a good Lieutenant will drop back during a frontal attack to control the overall movement of the platoon instead of charging in.

Chapter 3:

U.S. Training Recommendations

(U) Training For The Threat

(U//FOUO)Countering the threats posed by Russian New Generation Warfare requires a combination of new thinking in the Electronic Warfare Battlespace, re-adoption of Tactics, Techniques, and Procedures (TTPs), and elements of U.S. field craft from before the War on Terror. Focused training at all levels to adapt to the new environment is crucial. Leaders' and commander's placing an emphasis on individual tasks to support their collective tasks and the unit's "Mission Essential Task List" (METL) is just the beginning. The purpose of this section is to highlight some of the Russian methods of exploitation, and how we can train to mitigate our current weaknesses.

(U) NAVIGATION

(U//FOUO) Units should anticipate attacks on their electronic assets during the planning for any operation. The performance and reliability of electronic navigation will deteriorate, cease to function entirely, or provide incorrect data to the user through false information inserted by an opposing force. The ability to maneuver could be reduced to non-electronic navigation aids (compass, military map) or other aids that the individual can acquire or have knowledge of. These can include, but are not limited to: civilian maps of the area, atlas, electronic device applications, or a local guide.

(U//FOUO) All levels of leadership, and the individual soldiers should train to use assets to navigate that the enemy cannot control. Solar, lunar, and celestial navigation has been proven over centuries to be reliable methods of recognizing direction on the ground that require no electronic input. The enemy has no ability to control or deteriorate these methods of navigation. However, there are some drawbacks to the use of celestial aids. Effective use of these methods requires experience and confidence, error can worsen a situation. Also, weather can obscure the sky, rendering these methods useless.

(U//FOUO) Other methods can be used that do not use the military map or electronic systems. If operating in an urban environment, the roads could be structured in a grid pattern with possible numbering or lettering systems. Almost everyone in the modern world has a cellular phone with some sort of GPS capability. Units might be able to use these since they operate on a different network than the military systems. A Soldier might be able to "hide" among the massive volumes of cellular data, but they will be creating an individual electronic signature than the enemy can detect, identify, and track. This is a trade-off that must be weighed during the risk assessment.

(U//FOUO) Urban terrain will offer other methods of orientation. In a modernized society, satellite television is prevalent. Most satellite dishes point toward the equator to lock in on their geo-synchronized transponders. This serves as a quick directional reference point. Local maps of the area near bus stations, in taxies, or city centers can also be located. Another option is to hire locals with knowledge of the area. This method, however, can be influenced by the enemy and should not be the only source of data to establish ground reference.

(U//FOUO) Land Navigation is a perishable skill. Failure to use and practice it will result in a deterioration of Soldiers' abilities. However, navigation is a basic tenant that easily integrates into all aspects of training at every level of command and control. Training for degraded and compromised systems, as well will preparing formations in the event of electronic attack, is the best way to mitigate its effects. Do not fear chaos, practice it.

(U) TACTICAL COMMAND CENTER OPERATIONS (TOCOPS)

(U//FOUO) Over the last several years, the trend is for commands to increase the size and capability of their Tactical Operations Centers (TOC). Large base camps with reliable power and internet have fueled the creation of communications platforms that are not mobile or reliable in austere field situations. Increases in staff section personnel, in order to accommodate the multiple lines of effort the U.S. Army works towards in a Counterinsurgency (COIN) fight, require more space and electronics. All of these factors have created large, unwieldy Command and Control (C2) systems that rely on tertiary, even quaternary, systems to communicate with any element that is, "Outside the Wire." Commanders demand maximum situational awareness with the ability to track, even at the Brigade and Division level, squad-sized elements with the increase in smaller, lighter C2 systems. While this style of command and control may work relatively well in counterinsurgency operations, it is an entirely inappropriate structure when facing a near-peer adversary

(U//FOUO) These technological advances were based upon the assumption that our enemy could not detect, intercept, monitor, or jam our electronic capabilities. We have become so comfortable in our technological and communications superiority, that many units have ceased using even the basic Frequency Hop mode for radio communications. They are simply operating on Single Channel/Cypher Text. This mode of communication is simpler to operate and secure in the sense that the insurgent enemy we have been fighting cannot easily monitor our communications. However, even this enemy can jam our communications with static or chatter by simply operating on the same bandwidth for very low cost/risk.

(U//FOUO) Russia's capabilities, as already outlined in previous chapters, are much more advanced than the insurgents we have been fighting. Units and especially headquarters elements must use good radio discipline in order to avoid electronic direction finding that pinpoints their location. Almost everyone that deployed to Iraq or Afghanistan has had to conduct a battle update brief (BUB) over radio or phone to commanders at an outstation. In a confrontation with Russian's or their proxies, this type of action will get units targeted through electronic warfare and then killed with artillery. Brevity codes, burst transmissions, relay stations, and communications windows are all TTPs that will limit the exposure of a headquarters to enemy electronic detection. Commanders must enforce strict communications security procedures at headquarters locations to maintain operational security.

(U//FOUO) The "antenna farm," located at every U.S. headquarters creates a massive visual and electronics signature for enemy forces. New tents and trailer systems have attempted to increase the mobility of TOCs, but still create a large, ground sign signature detectable by enemy ISR platforms. Many of these Deployable Rapid Assembly Shelters (DRASH) need large open spaces to erect, and require large amounts of camouflage netting to cover. Even though the intent was to make a TOC more mobile, in order to ensure continuous connectivity, this type of setup has done exactly the opposite. Worse, units set up these TOC complexes in open elevated terrain in order to facilitate better communications transmissions. Again, this makes them extremely vulnerable to detection and ultimately destruction by enemy forces.

(U//FOUO) Commanders and their senior staff members must execute a mission analysis prior to combat operations to determine the realistic size and scope for a survivable TOC. A "triage," conducted by the staff must identity critical and non-critical personnel and assets to cut back on size and scale. Non-essential elements of the staff that can operate in a rear area away from the risk of EW detection and attack should do so. Every person and computer close to the battle exponentially increases the chance of electronic detection. This is the "Ounces Equals Pounds" concept on a much larger scale.

(U//FOUO) Another concept units should practice is the mobility of their TOC. Being able to relocate multiple times throughout an operation will ensure greater chances of survivability against enemy indirect fire, air power, and Special Forces raids. Additionally, TOCs need to reduce the centralization of both their personnel as well as their hardware. Any electro-magnetic emanating equipment should be both mobile and detached as far as securely possible from the TOC body. In the future, our current TOCs are massive targets for enemy artillery, and even unmanned aerial strikes (as outlined earlier in this document). Commanders and senior NCOs need to be aware of the TOCs susceptibility to enemy attack and prepare accordingly. Each TOC should have their own theater specific SOPs that plan for contingencies in the event of enemy action, to include TOC survivability protocols and designated survivor operations.

SUPPORTING MANUALS

FM 3-0 Operations

FM 3-90 Tactics

FM 3-21.20 The Infantry Battalion

(U) MISSION COMMAND

(U//FOUO) The current Russian threat has demonstrated repeatedly the ability to effectively integrate EW systems with indirect fires assets. Ukrainian Armed Forces (UAF) fighting against these Russian systems operate in near-to-total electronic blackout conditions to avoid detection and destruction. When the enemy is able to set conditions so effectively to nearly eliminate all communications, it is imperative that friendly forces understand the mission and be prepared to operate with little to no guidance from higher.

(U//FOUO) U.S. Forces must begin to focus training on the tenants of Mission Command. Mission Command is the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations.

(U//FOUO) Key to Mission Command is a clear task and purpose with intent for subordinates. Commanders must trust subordinates to make the right decisions with no or little guidance from higher. Commanders also must be comfortable letting their subordinate units operate independently for up to several days without direct communications with higher. This is where the clear task and purpose for mission command becomes vitally important. The "One-Slider CONOP" that has been the base order for the last decade does not give enough information to execute an operation like this. Full "operations orders" (OPORDs) with specific operations goals and objectives, not necessarily lengthy pages, ensure that subordinates can take a commander's intent and directives and execute without further interference.

(U//FOUO) When executing training, Commanders can begin to practice the basics of Mission Command by empowering subordinates. Allowing subordinates to operate within their initiative and their understanding of orders is the first step. Small element training to conduct multi-day operations with no communication with higher will take more time, but is essential. Equally, headquarters and

commands must learn to expect completion of a mission or tactical task within the Commander's intent without status updates or "situation reports" SITREPS.

(U//FOUO) There are several risks the planning process can address. Small units operating independently must have planned contingencies. This is a slippery slope where over planning can stifle initiative, however, properly trained and managed, these contingencies can ensure mission success even if a situation does not go as planned. Prearranged communications windows, isolated personnel procedures, and expected times of return with link up procedures are a few examples of planning factors.

(U) Figure 16: Mission Command Concept

SUPPORTING MANUALS

FM 5-0 Army Planning and Orders Production

APD 6-0 Mission Command

FM 3-21.8 The Infantry Platoon and Squad

(U) BOOBY TRAPS/LANDMINES

(U//FOUO) One of the highest casualty producers in Eastern Ukraine is booby-traps and land mines. These are not to be confused with Improvised Explosive devices (IED) that the U.S. Army encountered in Iraq and Afghanistan. IEDs are present in the Operational Environment and should be considered as a new normal of warfare. IEDs, in Eastern Ukraine, most commonly consist of military or industrial grade munitions, since there has not been a need to manufacture homemade explosives. This reduces the signature of alteration on initiation systems as well as results in a smaller charge. Indicators of the presence of IEDs are still applicable to IEDs and TWIGs.

(U//FOUO) In almost all variation of TWIG employment, the F1 Grenade is emplaced with a wire of some type attached. However, not all methods of initiation are "Pull." Ukrainian Forces have encountered tension release methods of emplacement as well. When training for the threat, it is critical to remember that nearly all of the methods of employment require a trip wire to initiate. The wire can be emplaced as a pull, or tension release initiator, so do not immediately cut any wire that you see.

(U//FOUO) Figure 20: Tension Wire Initiated Grenades (TWIG)

(U//FOUO) Employment of Directional Fragmentation type landmines in Ukraine by RLSF is common. MON-50, -100, and -200 fragmentation mines (similar to the U.S. M18 Claymore) have been found throughout the conflict area. Ukrainians have found them with initiation methods varying from command initiated, remote detonated, to trip wires.

(U//FOUO) Many of the lessons that U.S. Forces have learned in countering IEDs are applicable to the woodland patrolling techniques small units will need to use. Ground sign awareness, variation of routes, and electronic aids can assist in detecting and defeating the explosive hazards on the battlefield. Plan all patrols like a breaching operation.

(U//FOUO) The enemy will emplace TWIGs in natural choke points, routes previously used, and dead space to cover kill zones. "Red Teaming" the operation is critical during mission planning. U.S. forces must put themselves in the enemy's seat and ask themselves, "How would I kill me?"

(U//FOUO) Training for these situations simply requires some "reverse logic." Trip wires and military munition booby-traps were common scenarios injected into patrolling training not that long ago. Understanding the threat in the operational environment is the first step to countering the enemy.

(U//FOUO) Within our current inventory, we have several devises that can aid U.S. forces in detection and neutralization of this threat. Use lasers to detect wires on the ground. Remember, though, that this can make you visible to enemy observation if they have enhanced optics capabilities. Parachute cord (550 chord) and silly string can be used in an urban environment to drape over and identify trip wires.

SUPPORTING MANUALS

FM 3-34.210 Explosive Hazard Operations

(U) SURVIVABILITY

(U//FOUO) Russia has shown the capability to rapidly bring massive amounts of indirect fire (IDF) onto a target once they have positive identification (PID). The threat of massed artillery and Multiple Launched Rocket Systems (MLRS) denies friendly forces a "safe haven." Forward Operating Bases (FOB), which U.S. formations have become accustomed to are not possible in this environment. Key systems that usually reside on a FOB for IDF detection will not be as available to maneuver forces. The mere presence of these systems (Q-36/48 e.g.) present an electronic target that allows detection and engagement. All combat and support units within the range of IDF systems must practice exceptional survivability TTPs.

(U) RLSF BMP camouflaged in the wood line

(U//FOUO) Ukrainian forces learned hard lessons in tactical dispersion and "camouflage, concealment, and detection" (CCD) techniques during the early staged of the battles for Donetsk and Lugansk. Camouflaging vehicles and other materiel is one of the first actions upon selecting a battle position, and described earlier in this section. Since Russian Forces employed their indirect fires capabilities much differently than NATO, and prefer massed fires that cover large areas, as much as 1km x 1km, tactical dispersion is a survivability consideration.

(U//FOUO) Employment of effective, environment-specific CCD techniques by individual Soldiers on their equipment and vehicles is the first, fastest, and no-cost immediate solution to avoid/ minimize detection by the multitude of threat human/ ISR assets that are encountered today and in the future. Field discipline enforced at all levels of leadership during routine home station training will reinforce these skills. The end goal is to make these tasks and skills second nature.

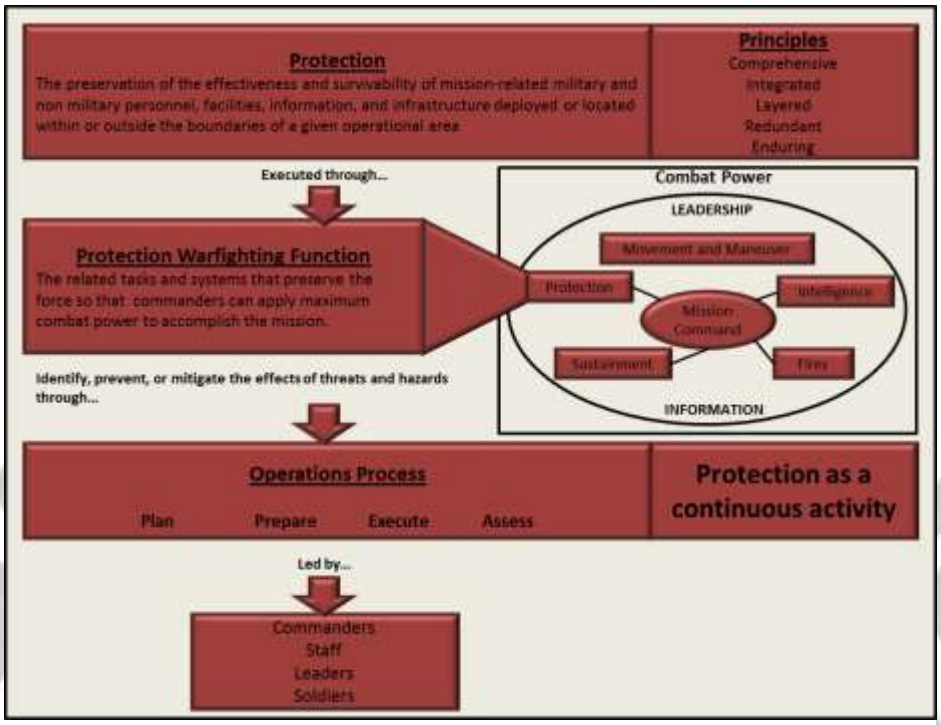
(U//FOUO) Planning for future conflicts should ensure time for everyone from the individual Rifleman, to the Battalion and higher Command and Control centers to implement a survivability plan. This should include digging and improvement of fighting and battle positions, tactical dispersion, and reduction of the electronic signatures. An additional consideration is that vehicles with bar armor, such as the Stryker, are now significantly wider than the base model and require additional time to adequately dig in.

(U) Ukrainian tanks with camouflage netting.

(U//FOUO) Russian Forces have shown a propensity and ability to identify and target the electronic signatures that a large headquarters element will emit. Battalion and Brigade levels must assess their electronic signature, and make the decision on reducing non-critical systems in an Electronic Warfare battlefield. Reduction of the electronic signature will make a headquarters less obvious of a target for surveillance capabilities.

(U//FOUO) In addition to the electronic signature, the Battalion and higher TOCs must reduce their physical footprint as well. Use of CCD will not completely eliminate the ability of UAS to visually identify a Command and Control cell. Tactical dispersion will assist in reducing the detection of a single, large element, but will increase the amount of terrain and assets required in employing CCD.

(U//FOUO) The tactic of deception is another advantage that headquarters can implement as well. Many headquarters sections establish a “Battle-Rhythm” for field environments to allow their commanders flexibility to plan and operate. But this is establishing a pattern, along the same lines as using the same route to travel time and time again. Variation of meetings by time, space, and distance, will make it more challenging for an enemy to detect and predict friendly operations. Training for the Electronic Warfare Battlefield must be conducted the same as any other operational environment, such as jungle, desert, or mountains.



(U) Figure 17: Protection Concept

SUPPORTING MANUALS

FM 5-103 Survivability

FM3-21.8 The Infantry Rifle Platoon and Squad

FM 3-34 Engineer Operations

ADP 3-37 Protection

FM 20-3: Camouflage, Concealment, and Decoys

(U) OPERATE IN AN EW ENVIRONMENT

(U//FOUO) As important as the capability to operate in an electronically degraded environment, is the ability to recognize that enemy forces are causing the jamming or interference. Often the first reaction of soldiers and leaders is to blame faulty equipment, or a bad Soldier Communicator, then spend time trying to trouble-shoot and fix problems that are actually created by the adversary. Even more dangerous, is the Russian ability to insert false readings and unit locations into a unit's Mission Command System (MCS). Imagine the danger of a commander not knowing the locations of any of his units. Significant dangers exists from a commander's sole reliance on the information on the screen and using that information to enforce fire control measures.

(U//FOUO) The Russian Armed Forces have developed an ability to target individuals (and their component units) based entirely on their electronic signature. They have also demonstrated the capability to jam or spoof GPS signals. GPS units, particularly commercial GPS equipment are susceptible to electronic warfare systems that can either completely block their GPS signal or give a false reading

sometimes hundreds of kilometers off. Soldiers must be proficient in map reading and land navigation with a compass in order to mitigate this threat. Additionally, advances in Russian military capabilities indicate their ability to potentially discover a unit's location based on their electronic signatures (such as GPS, cell phone communication, etc.) and engage friendly forces with effective fires based on that signature.

(U//FOUO) The first step to mitigating the threat posed by Russian EW capabilities is to determine a unit's digital, cyber and general electronic footprint. Commanders and NCOs need to take ownership of their reliance on electronics and begin to formulate small unit-level SOPs. Recently the Army has stood up a cadre of cyber advisers designed to provide just this input at the tactical level. Although they are in heavy demand, having a cyber-adviser can greatly benefit a command by assisting leaders in determining what equipment might be more or less vulnerable to enemy EW attack. Once this digital overlay has been created, leaders will be able to see what communications nodes could come under attack and develop ways to communicate and operate without over-reliance on critical information nodes.

(U) REACT TO UNMANNED AIRCRAFT SYSTEMS (UAS)

(U//FOUO) There is a very important reason that UAS feature heavily in recent threat discussions; the U.S. Army has not had to look to the sky in years. The Eastern European operational environment consists of a modern enemy who employs technology previously only used by our forces and quickly adapts it in an active environment. The result is an efficient employment of UAS across all levels. During a case study of UAS awareness, conducted at the Asymmetric Warfare Training Center in Fort A.P. Hill, VA, an experienced Army unit conducted training while being observed by commercial grade UAS systems (DJI Phantoms) for over a week. The unit received enemy UAS capability briefs and intelligence assessments; however they did not detect the UAS or realize their vulnerabilities.

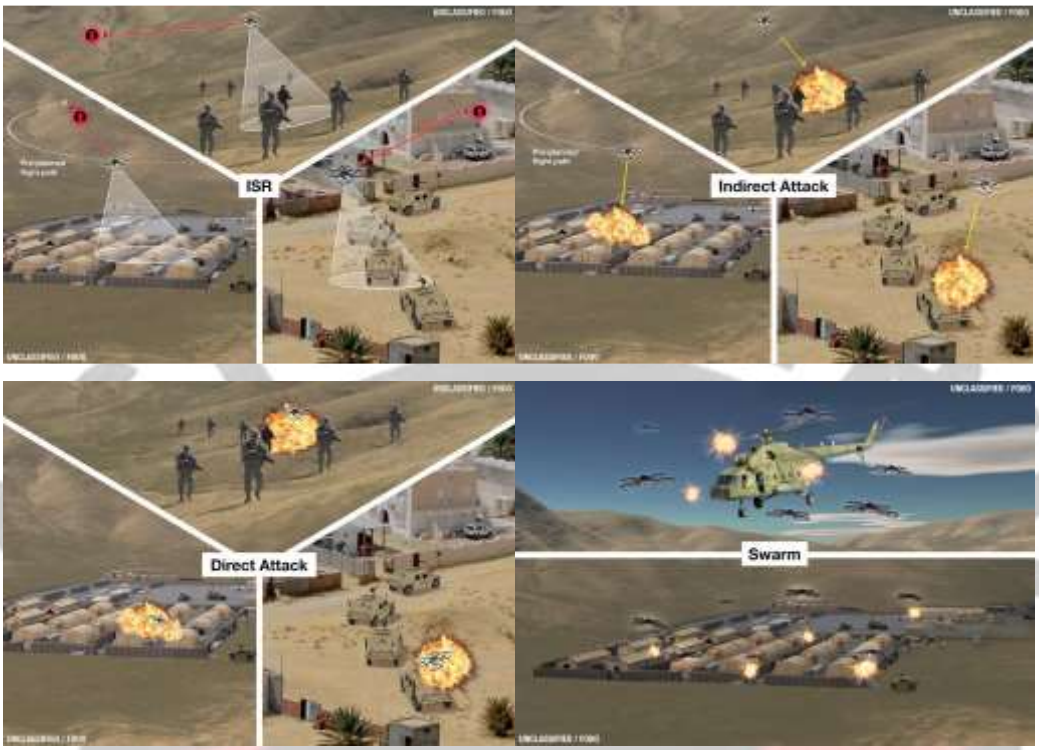
(U//FOUO) This is an extremely telling example of our current Army culture. The current assumption that "if it is above us, it must be friendly," is potentially disastrous for U.S. forces. Even worse, current templates of enemy Electronic Warfare (EW) capabilities, may completely prevent the employment of friendly UAS systems. While not a preferable situation, practicing operations in this denied air environment allows U.S. forces to assume that air assets belong to the enemy and can react accordingly until an "If Friend or Foe (IFF)" can be established. The process to react to enemy UAS must be as defined and practiced as any of the Warrior Tasks and Drills. When an enemy UAS is overhead is not the time to explain courses of action. By taking the time to instruct junior Soldiers on the potential dangers of small UAS, commanders and NCOs may save lives – and increase their ability to successfully complete assigned missions.

(U//FOUO) Before discussing how friendly forces should react, it is necessary to understand all the possible purposes that enemy UAS could serve. UAS activities can be grouped into one or more of four categories:

1. **Intelligence, Surveillance and Reconnaissance (ISR)**
2. **Indirect Attack**
3. **Direct Attack**
4. **Swarm Tactics**

(U//FOUO) The U.S. Army is very familiar with category 1 as it is the most frequent purpose for UAS in support of our operations. The use of UAS for intelligence, surveillance, and reconnaissance (ISR) includes general awareness of friendly/enemy locations, battle damage assessments, as well as being

used as a method of performing command and control to direct ground attacks. Russian tactics in Ukraine also heavily feature their ability to correct indirect fires with certain types of their UAS.



(U//FOUO) Figure 18: Demonstrates the possible uses of UAS in support of enemy operations. Direct Attack and Swarm TTPs are not currently prevalent on the battlefield but require separate actions.

(U//FOUO) Category 2, Indirect Attack, concerns the use of a system or payload present on the UAS that it can deploy while maintaining overhead coverage and video feed. This includes the release of explosives, chemical agents, or other payloads to cause chaos, damage, injury, or death among friendly personnel. The most common method of indirect attack in Ukraine is the use of payloads that possess EW capabilities to conduct electronic attack. Jamming communications adds to battlefield confusion and degrades command and control required to prepare for enemy offensive operations.

(U//FOUO) The remaining two categories have not become prevalent on the modern battlefield, but analysis tells us this a natural evolution for enemy tactics. Direct attack concerns the employment of UAS in a "suicide mode," with either just the UAS itself or an explosive payload attached to cause injury or death to friendly personnel. As civilian systems continue to advance, this tactic becomes a significant concern due to the amount of weight modern drones can carry. This gives enemy personnel the capability of selecting specific targets as an isolated operation or in support of follow on/currently engaged forces. The YouTube video showing a commercially purchased drone land in front of Chancellor Angela Merkel during a speech is a prime example of how dangerous this method can be: https://www.youtube.com/watch?v=1-5MDqGGon8.

(U//FOUO) Swarm tactics are focused on the combination of the other three categories with the intent of overwhelming friendly systems. Russian Forces are currently experimenting with this tactic and, based on the rapid advances in drone technology, will be an increasing threat in the near future.

(U//FOUO) What can American forces do about this threat? The first step continues to be the only universally effective measure against all groups of UAS; exposure and awareness of the threat.

Soldiers currently have a mindset that increased the effectiveness of the enemy's use of these systems. The modern threat environment features an active and deadly air threat with UAS and it needs to be treated as such. Creation of SOPs in response to UAS activity, and tailoring those responses to the environment and tactics being used by the enemy, needs to become as routine as react to contact.

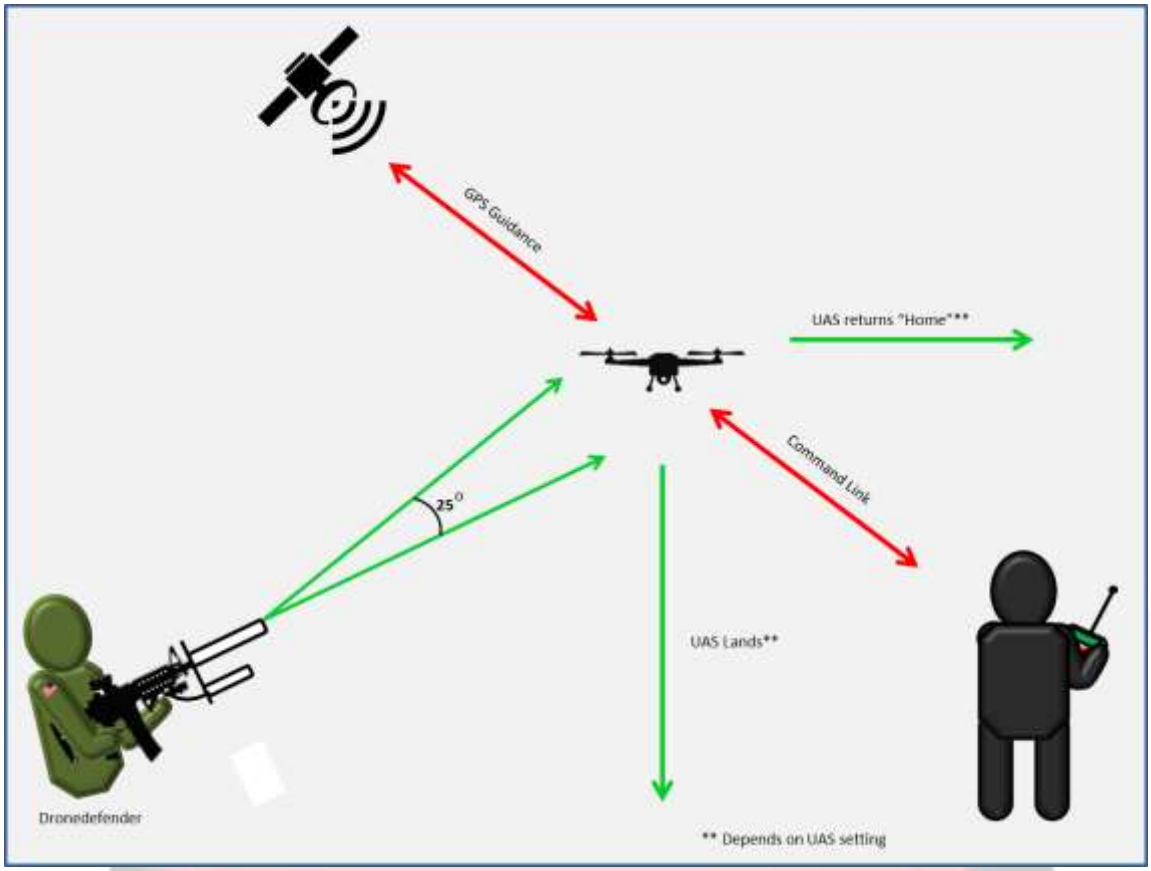
(U//FOUO) Reporting is another crucial step in defeating systems and building an accurate enemy situation template. Understanding the key features of enemy systems and those capabilities allows for effective reporting and intelligence preparation of the environment (IPOE). The figure below demonstrates an example of a standardized enemy UAS report. It places emphasis on specifics that would allow UAS experienced personnel to identify the type of UAS and essential pieces of information such as range, methods of control, possible payloads etc.

Line #	Information	Example
1	Unit Call Sign and Frequency	Red 1, FHXXXXX
2	Unit Location	Grid XX12345678
3	Location of Threat UAS Asset	Grid or Distance/Direction From Reporting Unit's Location
4	Date Time Group of Observation	DTG
5	Estimated Time on Site	Was threat UAS asset approach observed or was it spotted overhead? How long might it have been there?
6	Flight Characteristics	Is threat UAS loitering in one spot (possibly already spotted reporting unit), is it flying straight (en route to loitering location), what is direction of flight, or is it flying randomly (searching)?
7	Estimated Size, Elevation, and Physical Description	Wingspan, height, color, tail configuration

(U) Figure 19: Recommended Reporting Procedure

(U//FOUO) Units such as the Asymmetric Warfare Group (AWG) have conducted numerous experiments to determine the effectiveness of small arms fire against UAS. AWG experiments have found this to be a last resort, especially when applied to UAS operating in support of other systems. Leaders must not only assess whether this is realistic, but also the current mission.

(U//FOUO) The "Drone Defender" is non-kinetic material solution to defend airspace against UAS such as quadcopters, hexacopters, and fixed wing systems. The system is designed to electronically interrupt the UAS signal, with minimal risk of interference to other systems, forcing the UAS to either land or return to its ground command station. The system is ruggedized, relatively lightweight and easy to employ.



(U//FOUO) Figure 20: Graphic Representation of Drone Defender in Operation

SUPPORTING MANUALS

TC 3-01.80 Visual Aircraft Recognition

(U) DEVELOP THE COUNTER-SNIPER/REACT TO SNIPER DRILL

(U//FOUO) Russian Forces have always placed special emphasis on the use of snipers in support of their operations. Recent application of a tiered sniper system has provided unique capabilities to these assets. This system organizes snipers into three tiers. Tier 3 are lower level trained personnel, roughly the equivalent of our Squad Designated Marksmen. Tier 2 are school trained, qualified snipers that have the capability to conduct longer range engagements. Tier 1 are highly trained marksmen and are mostly used as a line of defense for key equipment.

(U//FOUO) In Iraq, the U.S. Army realized the effect snipers can have on the battlespace, resulting in numerous hasty solutions and training to mitigate the effectiveness of sniper elements. However, very little emphasis was ever put on fully defeating the sniper threat. In Ukraine, Russia has developed their sniper tactics to the point of deploying large formations of trained marksmen, up to a platoon size in one element. Russian IDF assets make a sniper team's ability to find and fix a formation even more lethal. Once a friendly formation determines they are being targeted by a sniper team or

section, it becomes critical to break contact, or immediately destroy the threat. Hesitation will only lead to more casualties from the snipers or a massed artillery strike. This poses a very unique threat and a difficult situation to respond to. The Ukrainians have no institutional capacity to train snipers, so their most effective solution is to employ 23mm anti-aircraft guns mounted to the top of MT-LBs to overwhelm the enemy sniper elements with heavy firepower.

(U//FOUO) This is not an adequate solution for our forces, but is a good demonstration of the lengths needed to achieve fire superiority. The U.S. Army developed the Squad Designated Marksman in response to increased sniper threat. This alone by no means provides a solution to a platoon of similarly trained individuals in an organized defense. Placing more emphasis on advanced marksmanship throughout the force is one mitigating factor. The focus on 300 meter qualifying standards, however, does little to increase the actual capability of the shooter. The current optics and M4 carbines within our MTO&E (Modification table of organization and equipment) provide the U.S. the capability to be effective marksman at ranges within 500m. Training Soldiers on moving targets and at ranges up to and beyond 300 meters better replicates real world battlefield conditions.

(U//FOUO) The counter sniper drill itself instructs the force to break contact instead of pinning down and engaging the enemy element. This is mission dependent of course, but some training should be focused on instructing formations to identify and destroy enemy snipers so as to prevent further engagements. If only using the current break contact drill, any enemy marksman in an established position will create a minimum of two casualties per engagement with little to no repercussions. Effective utilization of our trained marksmen, with a priority on eliminating the threat, is a much more effective training solution.

(U//FOUO) If a unit does become engaged by massed snipers, the difficulty of operating in a restricted communications operating environment becomes apparent in this situation. A small unit leader risks detection and further engagement by maintaining open communications with higher during movement. Equally, the TOC, or other command elements, risk compromise by operating our battlefield command tracking systems.

(U//FOUO) Setting the conditions for a patrol during the planning phase will assist greatly once a section comes into contact with massed snipers. Timelines and phase lines will allow the command to track the planned location of a patrol without direct communications. Pre-planned targets will allow friendly support to break contact quickly or use suppressive fires to enable offensive maneuvers. Effectively planned and coordinated counter-sniper operations before, during, and after missions will allow the opportunity to detect and destroy the threat.

SUPPORTING MANUALS

FM 3-21.8 The Infantry Platoon and Squad

FM 3-22.10 Sniper Training and Operation

(U) CYBER/IO/SOCIAL MEDIA

(U//FOUO) Todays' Soldier is highly reliant on modern digital communications technology. In just ten years (2005-2015), social media usage amongst U.S. internet-users (including within the military)

increased from 7% to 76%.[13] This exponential increase in reliance on digital social media represents a broad trend around the world. With the ability to send messages to global audiences at the speed of light come new dangers. Commanders now face difficult decisions in regulating their Soldiers' use of social media and other communications tools. The newest cadre of Soldiers, known as the first generation of truly "digital natives," is often culturally resistant to regulations imposed on their online social interactions. So a balance is often struck, maintaining the need for robust operational security while providing Soldiers with the individual freedom to communicate with loved ones.

(U//FOUO) Digital operational security violations now have strategic-level implications. During the initial stages of the Ukrainian conflict social media was used to prove the involvement of Russian Forces in the conflict by the Atlantic Council, destroying Russia's narrative. Additionally, operational security violations now have long-lasting impact on the Army's strategic and tactical postures. A simple, innocuous-seeming post on Twitter or Facebook can now give away location, movement, and military capabilities in the stroke of a key. Soldiers often "check-in" on social sites such as Foursquare on sensitive military sites, while not fully understanding the deep implications of releasing their geo-locational data for the world to see. Many well-intentioned Soldiers simply operate under the assumption that "I'm not important enough for the adversary to be watching." This could not be further from the truth: the adversary carefully watches, and manipulates, even the most mundane posts made by U.S. Soldiers. Never before has the actions of one lone individual been so visible and prone to manipulation by the adversary. To make matters worse, many operational Commanders and Senior Non-Commissioned Officers never even know what their Soldiers are saying or doing online.

(U) Atlantic Council report that used social media to pinpoint Russian Troops in Ukraine.

(U//FOUO) The best defense against these actions is increased understanding of both friendly and enemy social media capabilities and tactics, techniques and procedures.

(U//FOUO) In addition to ensuring that Solders are not putting out unauthorized communications or social media posts that adversely affect operations, Commanders also need to be aware of adversary disinformation campaigns. Environments characterized by hybrid-style operations are most prone to military deception and other disinformation campaigns. The adversary often manipulates social media sentiment as a ways of multiplying their force projection and as a means to sow confusion amongst U.S. and allied forces. Sometime this manipulation can be as basic as bolstering pre-existing news sources that portray a certain viewpoint, or as sophisticated as using fake social media "botnet" accounts that disseminate outright lies. With strong traditions of free speech and policies of government non-interference in private media, the West often struggles to understand that Information Operations are now often the deciding force in military operations. Information Operations now occur throughout the phases of operations, but are primarily useful in the initial phase of a confrontation. While news used to be relegated nearly entirely to broadcast and print news sources, an estimated 62% of users now get their news from social media and other online news sources.[14]

[13] Perrin, Andrew. Pew Research Center. "Social Media Usage: 2005-2015." Published October 2016: http://www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/

[14] Gottfried, Jeffrey, and Elisa Shearer. "News Use Across Social Media Platforms 2016." Journalism.org: Published May 2016, retrieved October 2016. http://www.journalism.org/2016/05/26/news-use-across-social-media-platforms-2016/

(U//FOUO) It is often extremely difficult to differentiate between truth and fiction online. With so many social sites available, anonymity is only a click away. Additionally, the advent of virtual private networks and "onion-style" routing, digital obfuscation has never been easier. While U.S. Army Europe is currently engaged in a campaign using a "Pinocchio Scale" to demonstrate the lack of accountability present in Russian media, it is never an easy task. This effort demonstrates the lack of commitment to factual information as well as the influence it can have when it is the only message present for the people to absorb.

(U//FOUO) These efforts can be replicated by friendly forces to expose the enemy intent and actions in support of their cause. Vice news conducted a report concerning social media postings to prove the presence of Russian Soldiers in the Donetsk and Lugansk regions. These efforts are necessary to counter the oppositions messaging and ensure the invested communities and civilian population are as informed as possible. Our Army needs to adapt to the environment as it exists and this should consist of Social Media monitoring teams as a specially trained element within our intelligence shops to discover and exploit this in the same way the Russians have done so effectively.

(U//FOUO) AWG has done extensive work with a test program– the Publicly Available Information Notification Tool (PAINT) to assist in monitoring social media for force protection purposes. This unique tool consists of a mobile cellular application that digitally projects a 'bubble' around a Soldier's location. Within this bubble, a Soldier can scan for specific threat keywords (in a variety of languages) on public social media venues around the user's immediate vicinity. While PAINT does not differentiate between truth and fiction – and certainly cannot discern military deception operations – it is the first step in providing Battalions and Companies with the tools needed to understand the social media environment around them. This, and other toolsets, allows battlefield commanders to view the cyber domain graphically. In the future, these efforts need to be supplemented with a training program and designated personnel focused on tracking social media in the environment they are operating in. This would assist in not only identification of possible intelligence but also in painting the picture of the human dynamic in the AO.

(U//FOUO) Infrastructure in much of Europe is tied to Russia which gives them unique monitoring capabilities. Our footprint in the area and conducted actions are easily monitored. Those actions are also used to reinforce information operations. This needs to be taken into account during the planning process and in deciding how we will communicate forward. These systems are hardwired into the infrastructure and must be accepted as a risk that cannot be mitigated effectively.

(U) OPERATING WITH DEGRADED COMMUNICATION CAPABILITIES- AIR TO GROUND INTEGRATION

(U//FOUO) Robust adversarial EW capabilities already discussed in this handbook require the attention of our forces. As our missions become more complicated and reliant on digital communications technology, more planning is required. The older techniques of non-verbal communication providing redundancy to standard communications will be essential to operating in a degraded environment.

(U//FOUO) All echelons of leadership need to identify the ability to operate in degraded communications environments as a high priority for their commands. Perhaps most germane to the discussion is the ability for Battalion and Company commands to operate independently in event that their digital, cyber and analog communications are degraded, destroyed or jammed. As next-generation Russian electronic warfare capabilities become more sophisticated and more prevalent on the battlefield, it becomes more important for commanders to both recognize the problem and prepare to continue operations in spite of communications problems. Specifically, commanders should conduct

battle drills that map out what their cyber and digital correspondence footprint looks like, then incorporate denied communication drills into their regular training cycles – both at home station and at the regional and national training centers.

(U//FOUO) Significant to this problem is our ability to conduct air to ground integration in a manner consistent with the requirements we have established over the last 15 years. As an Army, we should be prepared to allow air assets to engage identified targets independently and without the use of verbal confirmation or digital assets we have become accustomed to. There was a period of time when this was a simple and streamlined processes, but collateral damage and risk management have systematically escalated the procedures required to engage targets. Acceptable methods of non-verbal confirmation between ground-based forward air controllers, infantry units and air assets/FDC's must be trained and rehearsed in order to maintain these capabilities in a degraded environment.

(U//FOUO) There are numerous solutions to achieving accurate fires without verbal or digital communications. Using tools such as laser designation devices and establishing specific SOP's that reflect the settings on the device itself as a means of confirming targets. For example, strobe setting on a target could designate the target and then flash solid as a visual confirmation. As we work towards utilizing smaller man-portable UAS, there is also room for implementation of these systems to assist in directing both air and ground based fires. Simply hovering over the target location and loitering in a pre-designated pattern could indicate a desired target. Additionally, the United States needs to be prepared to develop capability for small, class 1 UAS operators to independently mark targets.

(U//FOUO) The implementation of and planning for control measures is another effective means of communication with limited to no actual verbal feedback. Phase lines, "No Fire Areas/Restricted Fire Areas (NFA's/RFA's), echelons of fire etc. are all effective means of ensuring mission control that have seen more limited implementation on the modern battlefield. Use of these measures provides a level of awareness to higher command consistently throughout the operation with minimal feedback.

(U//FOUO) Our emphasis on mission command and how it makes the Army a more effective fighting force should mean we require less stringent communication requirements. At the planning level, we need to plan for less communication and see what happens in a training environment when it does not exist at all. Do our Soldiers possess the skills and knowledge base to establish communications using field expedient methods? Are they aware of what can be exploited and how? And most importantly, what happens when it all goes away?

(U//FOUO) Communication is a constant AAR comment in the best of times and it seems it has become an extremely complicated endeavor to maintain. Perhaps our emphasis on having three types of redundancy built into every communication plan had an effect on the enemy's prioritization of modernization. U.S. units should consider this as they train to execute future missions.

(U) MEDICAL WITH FOCUS ON MASS CASUALTIES/FIELD TRIAGE

(U//FOUO) Due to the effectiveness and lethality of fire strikes in Eastern Ukraine, there have been several battles that have seen casualty numbers hit the triple digits. These mass casualty scenarios are outside the scope our Army has become accustomed to in counterinsurgency operations. The NCOs and medical professionals within our force are highly capable, but they have minimal effective training in how to handle a situation of this scale and effectively manage a triage scenario.

(U//FOUO) The training is actually very simple from a combat scenario perspective. A lot of expertise goes into conducting triage at the higher medical levels. This fact makes the exercise a daunting task for an NCO just because of the connotations associated with the word "MASCAL."(Mass

Casualty) Additionally, making these decisions on the spot with so much at stake weighs heavy on any mind making the snap decisions on the ground.

(U//FOUO) Old doctrine, designed for just such scenarios in the advent of all out confrontation in the Cold War, remains relevant, but unused. The fact remains that basic and advanced triage remains a training gap within our force. Platoon level officers, senior NCOs and their assigned medics should refine this system to ensure it is effective and timely to maximize survivability of the force. While triage remains an afterthought in counterinsurgency fights, it can save hundreds, if not thousands of American service members lives should large-scale conflict become necessary with a sophisticated near-peer adversary. Additionally, care should be taken in applying the correct type of training to Soldiers preparing to deploy to such a conflict zone. Focus should be on artillery bombardment, precision rifle fire, thermobaric burns, and the potential for CBRN attacks instead of the ground-based improvised explosive attacks we have trained against for the last ten years.

(U//FOUO) From the unit training perspective, leaders should also explore possibilities where MEDEVAC and CASEVAC are outside the normal "golden hour." Due to denied air and ground assets, leaders may have to care for casualties longer than expected. Concepts of wilderness medicine, where evacuation is days if not weeks away, and prolonged casualty care should be introduced and planned for when addressing a conflict with a near peer adversary.

(U) MAINTENANCE OF COUNTER INSURGENCY (COIN) CAPABILITIES

(U//FOUO) None of the information in this handbook is meant to say the lessons of the last fifteen years are lost in the current threat environment. COIN remains a valuable skillset that is just as applicable in Eastern Europe as it was in Afghanistan and Iraq. The use of SPETsNAZ forces to cause dissention amongst the local populace combined with other forms of proxy forces means the experiences of our Soldiers are still relevant.

(U//FOUO) IEDs are being widely used in Ukraine and have become the new normal of 21st century warfare. The introduction of as well as victim operated grenades (TWIGs) are prevalent in this area of operations. The point man experiences of previous years are just as important just in a slightly different way. Dispersible munitions ensure route clearance packages are still needed to open ground movement corridors.

(U//FOUO) Most of all, the ambiguity associated with how RLSF are conducting business once again makes it difficult for U.S. to pinpoint the enemy. This goes against the thought process associated with a near peer conflict. We expect uniforms, formations, and an easily identifiable enemy. RLSF have capitalized on providing multiple enemies on the battlefield, while simultaneously exploiting the local populace for their own purposes. It is incumbent on Army and Joint Forces leadership to remember the hard-learned counterinsurgency lessons and tailor them appropriately to an ambiguous, hybrid-style confrontation.

(U) CONCLUSION

(U) Russia has dedicated their efforts over the last 20 years to two main areas: learning from their own conflicts in Chechnya and Georgia, and learning from our involvement in the Global War on Terror. The combination of these has resulted in focused modernization that began in earnest in 2008 designed to defeat U.S. systems, prevent effective command and control, and deny key weapon systems

access to the battlefield[15]. Now the onus is on the U.S. Army to look inward and determine how to adapt to the modern threat environment.

(U) The Asymmetric Warfare Group has been chartered with providing the Army the capability to produce threat focused predictive analysis so our Soldiers are not taken by surprise again, like with the IED. Continuous exposure and analysis of the Russian threat in conjunction with numerous agencies, the intelligence community, USAREUR and EUCOM staff, as well as partners within the UAF has told the U.S. that immediate increased adaptation at the operational level and below is absolutely necessary for survival. The situation Ukraine is currently in is unfortunate and has yielded some tragic consequences, but it would be equally tragic to fail to learn from the experiences of our partners and not prepare our Soldiers accordingly. The UAF has found the majority of their success through flexibility, creativity, and outside the box solution development bred out of the necessity to survive. The same sense of urgency should permeate our force sooner rather than later. Waiting for new technology to fix our problems with exisiting enemy capabilities will leave U.S. ill prepared for the next fight.

"A dead soldier who has given his life because of the failure of his leader is a dreadful sight before God. Like all dead soldiers, he was tired, possibly frightened to his soul, and there he is on top of all that never again to see his homeland. Don't be the one who failed to instruct him properly, who failed to lead him well. Burn the midnight oil, so that you may not in later years look upon your hands and find his blood still red upon them."

- James Warner Bellah

[15] Thornton, R. (2011). *Military Modernization and the Russian Ground Forces.* Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute.

Appendix 1

(U) COUNTER TARGET ACQUISTION BATTLE DRILL

(U//FOUO) Counter Target Acquisition (C-TA) refers to defeating Russian Force's layered application of target identification and destruction. In dealing with this threat, leaders must always plan for the most dangerous scenario and therefore always assume that one Russian system is directly tied to the effects of another. Combatting this requires dissecting the acquisition cycle to allow for step-by-step exploitation in order of priority.

(U) Figure 21: Enemy Target Acquisition Cycle

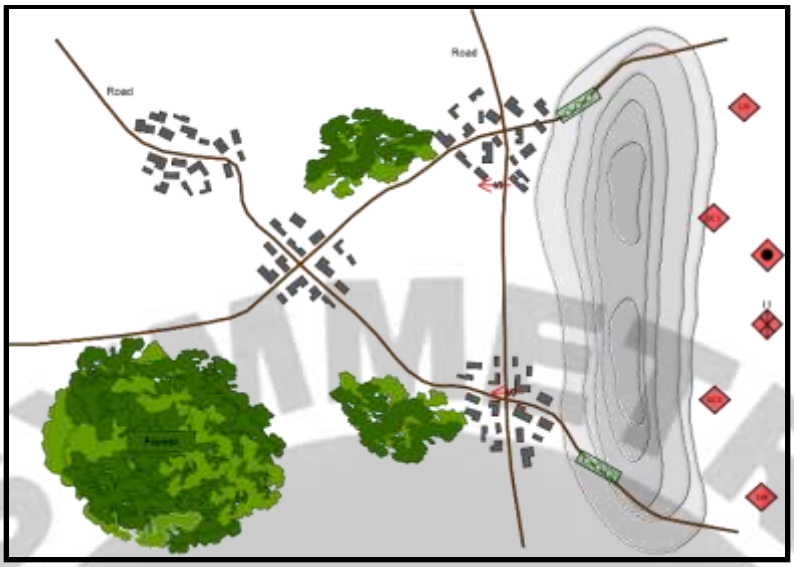
(U//FOUO) Below is a hypothetical scenario to illustrate this threat and the drill to counter it. Using previous reporting, a thorough METT-TC (Mission · Enemy · Terrain & Weather · Troops · Time Available · Civilian Considerations). analysis, and detailed map reconnaissance, the first step is to develop an enemy template in accordance with this fictional (Figure 3) objective. This template has determined that the enemy has most likely brought all of his systems to bear and are using the high ground to mask and protect their most valuable systems. Templated enemy snipers in forward positions provide early warning and supplement fires through corrections and adjustments if necessary.

(U//FOUO) Using the elevated terrain, the enemy have shielded two EW systems and two ground control stations (GCS) to degrade communications and provide UAS coverage over their objective area. An unknown amount of artillery pieces are capable of responding to sniper observations. Finally, a BTG minus is in support, in case the enemy must advance to finish the friendly forces after fixing them with fires. As a last resort, templated minefields cover the high speed avenues of approach around the mountain, giving the enemy the ability to break contact if necessary.

(U//FOUO) This is a simplified version of a defense in depth. Adding potential observers within the villages gives another layer to the defense, providing the enemy more standoff.

(U//FOUO) The following scenario is intended to demonstrate a friendly platoon's ideal reaction to the enemy target acquisition process.

(U//FOUO) As the platoon approaches the objective area, they begin to encounter emplaced enemy early warning systems. The local population reports on locations of U.S. forces, snipers scan to identify the unit, and enemy UAS launch to provide overhead ISR. The earlier UAS sections state that the only solution to UAS is awareness. This can take the form of personnel being assigned to conduct overhead security (air guards) or forward reconnaissance elements tasked with the identification of UAS and possible sniper locations. These measures are implemented in accordance with the planned enemy template. For instance, with the templated enemy situation on the map, friendly forces should have sent reconnaissance elements in advance of the main effort to try and find the best covered and concealed route, identify an assault position, and begin to confirm or deny the enemy SITTEMP (Situational Template) for follow on elements.



(U) Figure 22: Initial Enemy Template

(U//FOUO) A secondary goal is to provide freedom of maneuver within the objective area. This is accomplished by disabling key enemy systems that provide them an advantage. In this instance, remaining undetected by the local populace and trying to identify if any UAS systems are currently employed in the AO, should be key objectives early on. Friendly communications systems should also be continuously monitored for signs of jamming or intercept as the force moves forward. This should be part of contingency planning for communications.

(U//FOUO) In this scenario, the friendly forces moved into the area, observed a low flying UAS, received three rounds of sniper fire, and reacted accordingly. (Figure 4)

(U//FOUO) The friendly element has now been engaged. The platoon must assume that at this point the enemy's has begun their target acquisition cycle. The number one friendly priority is now to not be fixed by enemy indirect fire assets.

Timeline of Fix: 5-10-20

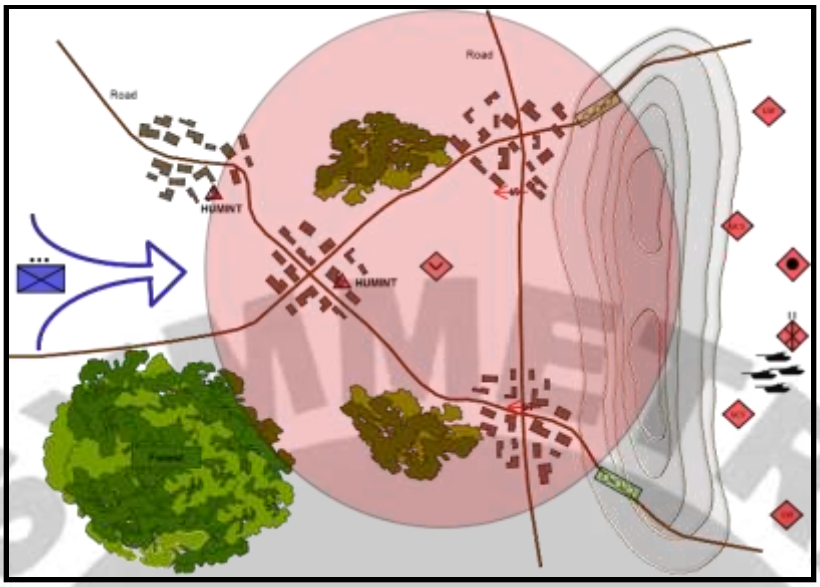
5 min: GPS enabled UAS. High flying UAS with the possibility of transmitting accurate grid locations almost immediately to staged enemy artillery.

10 min: Forward deployed snipers/observers have eyes on and transmit a fire mission in accordance with observations.

20 min: NON-GPS enabled UAS (typically group 1 or 2). Reference points must be used to calculate elements position/Pythagorean Theorem.

(U//FOUO) This may mean initiating a break contact drill immediately upon consolidating the force. If this is the case, the platoon can still collect valuable intelligence on the enemy's disposition. Reporting must always be in the forefront to continue to refine and build on the enemy template.

(U//FOUO) In order to continue towards the objective, friendly forces must deal with the enemy's defensive layers. The local populace is a factor, but one that will require a great deal of time to exploit and counter. In order to not become fixed, the friendly element therefor bypasses population centers and focuses their efforts on the low flying UAS. This will provide additional freedom of maneuver to later engage suspected sniper positions and reach the objective.

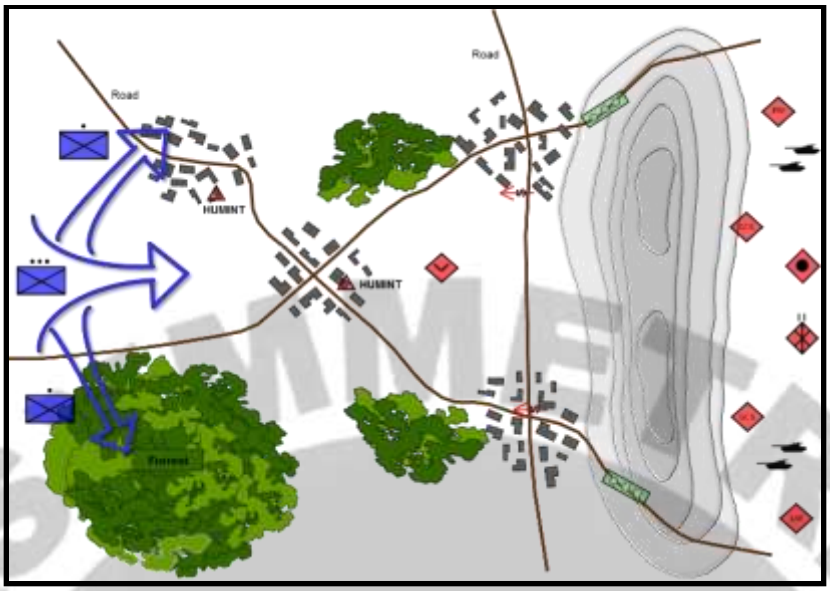


(U) Figure 23: Identification of UAS/Sniper Fire

(U//FOUO) In order to maintain freedom of maneuver, the platoon will disperse their element and seek available cover and concealment. This can be done simultaneously if it was a previously planned contingency, or the platoon can quickly organize, issue orders, and begin their movement. Proper dispersion entails special equipment going to the necessary locations and tasks distributed to provide focus on the continuing mission.

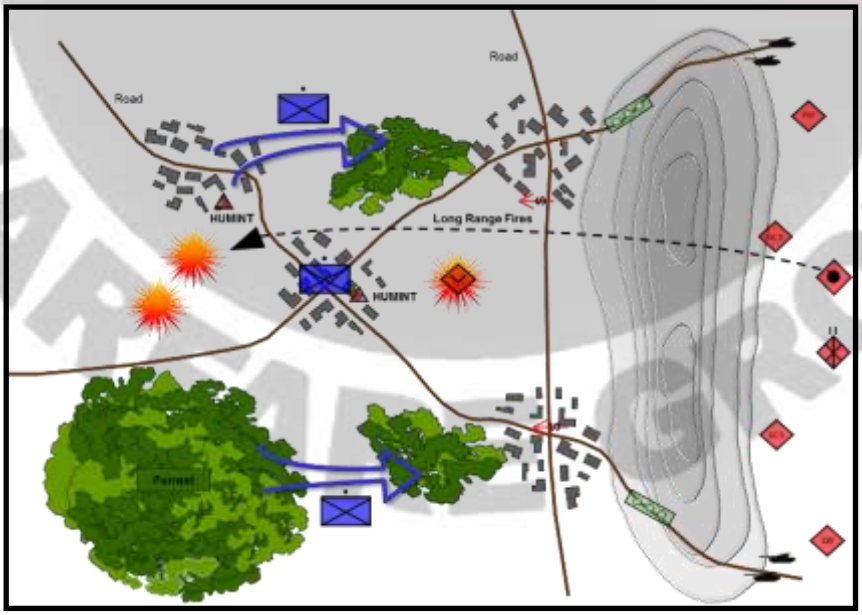
(U//FOUO) In this example, the center element will be responsible for tracking and defeating the enemy UAS system. Once this is complete, it will enable the increased maneuverability of the platoon's two flanking elements, allowing them to pinpoint and attempt to destroy the enemy sniper elements within the eastern villages.

(U//FOUO) The dispersion of elements must fit the above 5-10-20 timeline. Since, in this example, there is a combination of two systems (UAS and snipers), the platoon must displace prior to the deadline of the most efficient system available. The sniper's forward observer capabilities means relocation needs to happen in under 10 minutes. The elements that will be focused on the snipers, and the decisive action later, move to cover and concealment to provide coverage for the center squad. This allows the center squad to focus on fixing and eliminating the UAS. (Figure 5)



(U) Figure 24: Reaction to Engagement

(U//FOUO) The center element stages in a covered area in order to focus efforts on destroying the UAS. If destruction is not possible, deception is the next best option for the center element, to ensure UAS focus is off of the flanking maneuver elements. This may entail intentionally exposing the center squad and drawing enemy fire, rather than risk compromise of the main assaulting elements. Once this objective has been achieved, the maneuver elements are capable of moving forward to assault positions to address the sniper threat. If the UAS cannot be defeated this should be the time where nonmaterial efforts are put in place to mask the movement of personnel.

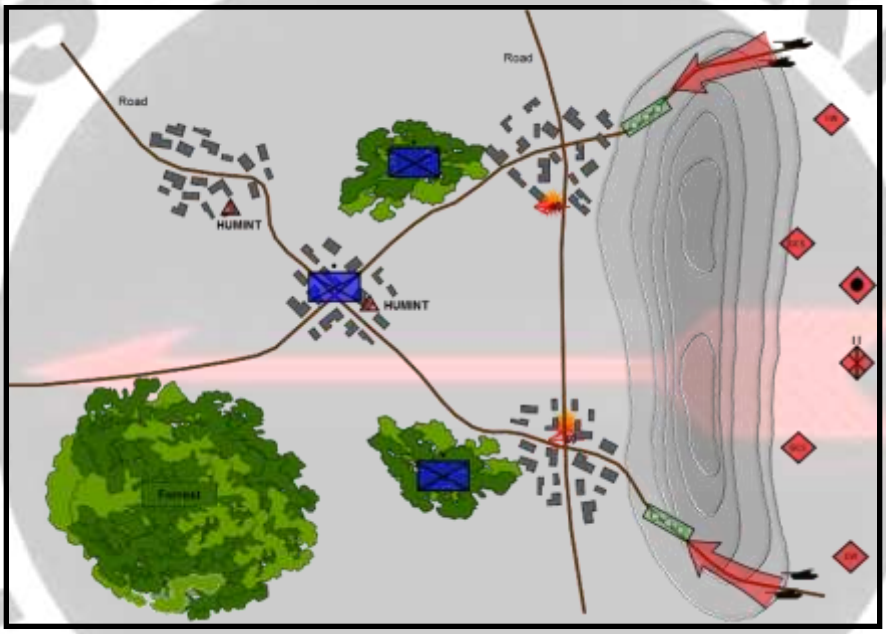


(U) Figure 25: Elements Divide into Teams

(U//FOUO) Also, notice at this time the enemy has done two things. They have begun engaging the platoon's last reported location with indirect fires and enemy maneuver forces have staged for an advance into the engagement area to finish the friendly platoon.

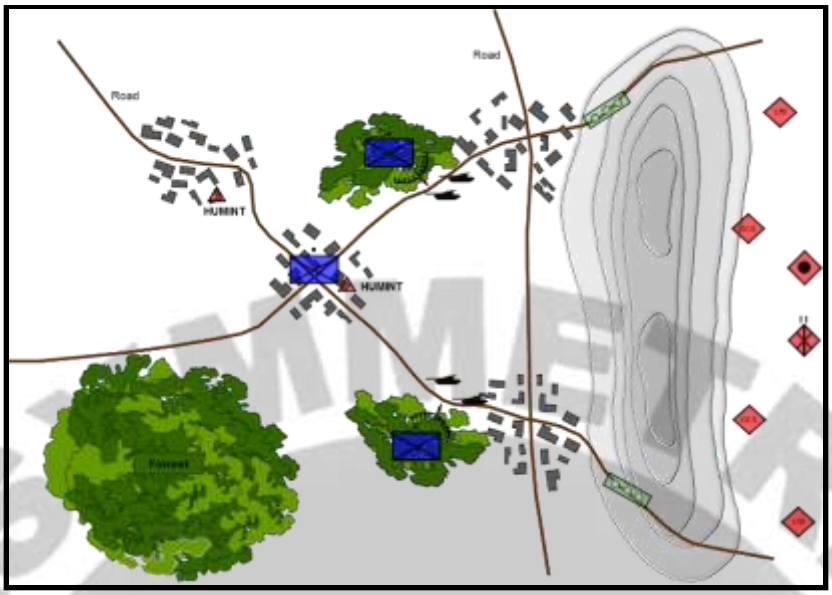
(U//FOUO) The sniper threat within the eastern villages is the next defensive layer that must be addressed. This is where the importance of task organization prior to dispersal is important. These elements require the necessary gear to conceal movement, detect the sniper threat, and engage the sniper with designated marksmen or other means.

(U//FOUO) These flank positions become key terrain the platoon must occupy in order to defeat the enemy's counter attack force. During this time, enemy armored vehicles begin moving towards the objective area to destroy what they assume are remnants of the platoon after the indirect fire strikes.



(U) Figure 26: Defeat of Sniper Elements

(U//FOUO) The platoon sets ambushes and prepares to receive the enemy's counterattack forces within the engagement area. This scenario's situation is ideal and provides the friendly platoon with an L-shaped ambush. At this time, the platoon's special equipment, such as ATGM's (Anti-Tank Guided Missiles), anti-tank mines, or improvised munitions are used to defeat the enemy within the engagement area.



(U) Figure 27: Ambush Follow on Forces

(U//FOUO) The purpose of this scenario and this C-TA Battle Drill is to recognize enemy emplaced systems and prioritize the elimination of those high value targets using a methodical process. This scenario focused on a single platoon with organic assets. Taking this scenario one level higher, it incorporates enemy radar acquisition systems and SAM (Surface to Air Missiles) sites. In that scenario, those assets become the first priority in order to open up air corridors, followed by any EW systems to facilitate unhindered friendly communications, followed by destruction of UAS to facilitate freedom of maneuver and so on.

Appendix 2

(U) SOURCES

Photos

- (U) Cover - Russian Soldiers in Crimea: TRADOC, Russian TTR (version 1.1), Oct15, 31.
- (U) Cover - Ukrainian Tanks: courtesy of AWG
- (U) Cover - Artillery Spotter: courtesy of AWG
- (U) Cover - UAS Operator: courtesy of AWG
- (U) Cover - Ukrainian D-30 Howitzer: courtesy of AWG
- (U) Cover - Protest in Kyiv, Ukraine: courtesy of AWG
- (U) Cover - Battle of Donetsk Airport: photo by Sergey Loiko, Los Angeles Times; http://euromaidanpress.com/2014/11/07/the-story-of-donetsk-airport-cyborgs-that-was-censored-by-russias-roskomnadzor/, 10Nov16
- (U) Page 5 - T90 Series: Worldwide Equipment Guide (WEG) Vol I
- (U) Page 5 - T80 Series: WEG Vol I
- (U) Page 6 - T72 Series: WEG Vol I
- (U) Page 6 - BTR-90: WEG Vol I
- (U) Page 7 - BMP-3M: WEG Vol I
- (U) Page 7 - 9P162 KORNET: WEG Vol I
- (U) Page 9 - SA-11 Gadfly (BUK-M1-2): WEG Vol II
- (U) Page 9 - SA-22 Greyhound (Pantsyr-S1): WEG Vol II
- (U) Page 10 - SA-10 Grumble (S-300VM): WEG Vol II
- (U) Page 10 - SA-21 Growler (S-400): WEG Vol II
- (U) Page 10 - TOR-M1: WEG Vol II
- (U) Page 11 - 55Zh6UE NEBO-UE: WEG Vol II
- (U) Page 11 - Russian soldier displaying Ratnik System: Army Recognition, 21Feb14; http://www.armyrecognition.com/february_2014_global_defense_security_news_uk/russian_army_will_adopt_the_ratnik_future_soldier_individual_equipment_gear_for_this_summer_2102142.html
- (U) Page 12 - Russian Soldier Basic Load: Pierre Vaux, “Despite ‘Withdrawal’ Russians Continue to Fight and Die in Syria,” *The Interpreter*, 23Mar16; www.interpretermag.com. 23 March 2016; http://www.interpretermag.com/despite-withdrawal-russians-continue-to-fight-and-die-in-syria/
- (U) Page 17 - SPR-2 (RTUT): DefenceRussia, “Deliveries and Development of Radio-Electronic Technologies Concern,” 26Apr14; https://defencerussia.wordpress.com/2014/04/26/deliveries-and-development-of-radio-electronic-technologies-concern/
- (U) Page 17 - R330 Series: Army Recognition; http://www.armyrecognition.com/russia_russian_missile_system_vehicle_uk/r-330zh_zhitel_jamming_cellular_satellite_communication_station_technical_data_sheet_pictures_video.html

- (U) Page 18 - RP-377 L/LA: Análisis Militares, 29Mar14; http://charly015.blogspot.com/2014/03/equipo-avanzado-en-crimea-sistema-de.html
- (U) Page 21 - Russian Grad Battery Salvo in the Donbass: https://www.youtube.com/watch?v=8QGYjQLVxyg
- (U) Page 24 - SS-26 Stone (Iskander-M): WEG Vol II
- (U) Page 24 - 2S35 Koalitsija-SV SP Artillery: www.strategic-bureau.com
- (U) Page 24 - TOS-1A Buratino: Qualitative Military Edge, Foundation for Defense of Democracies; http://militaryedge.org/armaments/220mm-tos-1a/
- (U) Page 25 - BM-21 MLRS: WEG; Vol. I
- (U) Page 25 - 2S19 Msta-S SP Artillery: https://en.wikipedia.org/wiki/2S19_Msta
- (U) Page 25 - BM-27 Uragan MLRS: WEG Vol I
- (U) Page 25 - 2S3 SP Artillery: https://en.wikipedia.org/wiki/2S3_Akatsiya
- (U) Page 26 - BM-30 Smerch MLRS: WEG Vol I
- (U) Page 26 - Orlan-10: https://de.wikipedia.org/wiki/Orlan-10
- (U) Page 27 - Forpost: Rich Smith, "Russia's $9 Billion Drone Program Looks Like a Bluff, but Should You Laugh It Off," *The Motley Fool*, 23Feb14; http://www.fool.com/investing/general/2014/02/23/russias-9-billion-drone-program-looks-like-a-bluff.aspx
- (U) Page 27 - Dozor-100: https://en.tengrinews.kz/science/Kazakhstan-interested-in-Russian-Dozor-100-unmanned-plane-2921/
- (U//FOUO) Page 39 - Tension Wire Initiated Grenade Concept: courtesy of AWG
- (U) Page 40 - Camouflaged BMP-2 in the Donbass: https://www.reddit.com/r/TankPorn/comments/54f2gr/prorussian_rebel_bmp2_ifv_camouflaged_in_the/
- (U) Page 41 - Ukrainian tanks with camouflage netting: courtesy of AWG
- (U) Page 47 - Atlantic Council Report: Maksymilian Czuperski et al. "Hiding in Plain Sight: Putin's War in Ukraine," Atlantic Council, May 2015; http://www.atlanticcouncil.org/images/publications/Hiding_in_Plain_Sight/HPS_English.pdf

Figures

- (U) Figure 1 - Russian Forces Modernization Infographic: Voices From Russia, 19Aug11; https://02varvara.wordpress.com/2011/08/19/19-august-2011-ria-novosti-infographic-new-organisational-structure-of-the-russian-armed-forces/
- (U) Figure 2 - Valeri Gerasimov profile: Press Service of the Russian Defense Ministry
- (U) Figure 3 - Dr. Rod Thornton profile: http://edition.presstv.ir/detail/210034.html
- (U) Figure 4 - Hybrid Force Composition: AWG graphic
- (U//FOUO) Figure 5 - Tank Battalion: AWG graphic
- (U//FOUO) Figure 6 - Motorized Rifle Battalion: AWG graphic
- (U) Figure 7 - Russian Air Space Denial Overlap: AWG Graphic
    - All pictures (except noted below): WEG Vol II.
    - Kasta 2E2: https://en.wikipedia.org/wiki/Kasta_2E
    - Big Bird 64N6E: Air Power Australia; http://www.ausairpower.net/APA-Acquisition-GCI.html#mozTocId420074
- (U) Figure 8 - Graphic representation of Target Acquisition Cycle: AWG graphic

- (U) Figure 9 - Russian Phases of Conflict: Charles K. Bartles, "Getting Gerasimov Right," *Military Review*, Jan-Feb 2016, 30-38; http://usacac.army.mil/CAC2/MilitaryReview/Archives/English/MilitaryReview_20160228_art009.pdf
- (U) Figure 10 - Russian Sphere of Influence Near and Abroad: Global Risk Advisors, "Mapping Russia's Sphere of Influence," 22Apr15; https://globalriskadvisors.com/blog/mapping-russias-sphere-of-influence/
- (U) Figure 11 - Russian Private Military Contract Companies Infographic: InformNapalm.org; https://www.flickr.com/photos/informnapalm/24332527536/
- (U//FOUO) Figure 12 - Electronic Warfare Company: AWG graphic
- (U//FOUO) Figure 13 - Russian Indirect Fire Capabilities: retrieved fom AWG
- (U//FOUO) Figure 14 - Artillery Battery: AWG graphic
- (U//FOUO) Figure 15 - USAREUR Analysis of Russian Messaging: courtesy of USAREUR
- (U) Figure 16 - Mission Command Concept: AWG graphic
- (U) Figure 17 - Protection Concept: AWG graphic
- (U//FOUO) Figure 18 - Emerging UAS employment TTPs: AWG-produced GTA 90-01-047, Unmanned Aerial System (UAS) Threat Awareness, Mar 2015
- (U) Figure 19 - Recommended Reporting Procedure: from AWG; based on CPT Jeremy M. Phillips, "Training for the Enemy UAV Threat," *Infantry*, May-June 2013, 46-7.
- (U//FOUO) Figure 20 - Drone Defender in Operation: AWG graphic
- (U) Figure 21 - Enemy Target Acquisition Cycle: AWG Counter Target Acquisition Tactical Pocket Reference
- (U) Figure 22 - Initial Enemy Template: AWG graphic
- (U) Figure 23 - Identification of UAS/Sniper Fire: AWG graphic
- (U) Figure 24 - Reaction to Engagement: AWG graphic
- (U) Figure 25 - Elements Divide into Teams: AWG graphic
- (U) Figure 26 - Defeat of Sniper Elements: AWG graphic
- (U) Figure 27 - Ambush Follow on Forces: AWG graphic

References

- Army Doctrine Publication 3-37, Protection, August 2012
- Bartles, C. K. (2016). Getting Gerasimov Right. Military Review, 30 - 38.Field Manual 3-21.8, The Infantry Rifle Platoon and Squad, March 2007
- Field Manual 3-21.10, The Infantry Rifle Company, July 2006
- Field Manual 3-21.20, The Infantry Battalion, 13 December 2006
- Field Manual 3-25.26, Map Reading and Land Navigation, 30 August 2006
- Field Manual 3-34, Engineer Operations, April 2014
- Field Manual 3-34.210, Explosive Hazards Operations, March 2007 (U.S. GOV ONLY)
- Field Manual 5-103, Survivability, 10 June 1985
- Field Manual 20-3, Camouflage, Concealment, and Decoys, 30 August 1999
- Grau, L. L. (1989). The Soviet Combined Arms Battalion - Reorganization for Tactical Flexibility. Ft. Levenworth, Kansas: DTIC.
- MAJ Holcomb, J. (1988). Soviet Artillery Utilization. Ft. Leavenworth, KS: DTIC.

- Ministry of Defense, Russian Federation. (2005). Battle Directives on the Preparation and Conduct of a Combined Armes Battle, Section 3: Squad, Platoon, and Tank Section. Moscow: Military Publication.
- Thornton, D. R. (2007). Asymmetric Warfare: threat and response in the twenty first century. Malden, MA: Polity Press.
- Thornton, R. (2011). Military Modernization and the Russian Ground Forces. Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute.
- Thornton, R. (2011). Organizational Change in the Russian Airborne Forces: Lessons of the Georgian Conflict. Carlisle, Pennsylvania: U.S. Army War College Strategic Studies Institute.
- Worldwide Equipment Guide Volume I: Ground Systems, December 2011
- Worldwide Equipment Guide Volume II: Airspace and Air Defense Systems, December 2011
- Worldwide Equipment Guide Volume III: Naval and Littoral Systems, December 2011

Acknowledgements

The Asymmetric Warfare Group would like to thank the various agencies that have contributed to or reviewed this work. This work includes almost two years of research, site visits, and discussions. As such, any omissions to this list are solely the fault of the authors and do not detract from the excellent support and cooperation received from both inside and outside the Department of Defense:

TRADOC G-2
Army Capabilities Integration Center
U.S. Army Maneuver Center of Excellence
U.S. Army Infantry School
U.S. Army Maneuver Support Center
U.S. Army Fires Center
U.S. Army Combined Arms Center
Center for Army Lessons Learned
Foreign Military Studies Office
Counter Explosive Hazards Center
U.S. Embassy Kyiv Defense Attaché Office
U.S. Embassy Kyiv Office of Defense Cooperation
John's Hopkins University-Applied Physics Lab
U.S. European Command
U.S. Army Europe
7th Army Training Command
Joint Multinational Readiness Center
2nd Stryker Cavalry Regiment
173rd Airborne Brigade Combat Team
California National Guard
Joint Multinational Training Group-Ukraine
Defense Institution Building
National Ground Intelligence Agency
European Strategic Assessment Team
The Armed Forces of Ukraine

Authors from Able Squadron, U.S. Army Asymmetric Warfare Group:

CPT Christopher Scott
SGM Robin Brachear
SGM Donald Boyer
MSG Larry Forrest
MSG William Travis
MSG Andrew Moore
SFC Sergei Volodin
SFC Melissa Porrett
Mr. Eric Reeves
Mr. Erik Kramer
Mr. Ronald Zacharias
Mr. Eli Cox

Asymmetric Warfare Group
2282 Morrison St, STE 5355
Fort Meade, MD 20755-5355

www.awg.army.mil

THINK. ADAPT. ANTICIPATE.