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The Counterfire Conundrum: Acceptable Levels of Risk in Large Scale Combat Operations

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U.S. Army and Japan Ground Self-Defense Forces conduct bilateral live fire missions during Orient Shield June 28-30, 2021 (Photo by Major Elias M. Chelala, USA)

Introduction

"I'm going to fire it…even if it violates an air coordination area," the Division Artillery Commander stated flatly as he stared through the expanse of the secure video-teleconference system. Two-thousand miles away, on the other end of the line, three Army Lieutenant Colonels, who for the past week had been advising him and his staff on the efficient and safe use of airspace within a division area of operations, sat transfixed by the bluntness of the comment. Much of the previous week's instruction and discussion with the DIVARTY commander's team on joint air operations had centered on the challenges of airspace management in large-scale combat operations

and the role of the air coordination authority. Despite it all, there were still some lingering dilemmas that remained. Specifically, how to address timely and effective counterfire, in a way that balanced the risk to aircraft with the risk to ground forces and their mission.

"I just don't know any other way to do it dynamically, and still get it done in time to meet the target selection standards… We either do this, or counterfire is dead as a tactic…It's either shoot with some risk or don't shoot at all…Otherwise, we're just pounding dirt, wasting ammunition and exposing ourselves".

At first, there was concern by some of the Lieutenant Colonels on the line that the DIVARTY commander may have missed the point of the last week entirely. Their cumulative years of experience in working closely with the Air Force told them, that if air control measures were violated and the JFACC started losing valuable crews and costly aircraft due to friendly ground fire, there'd be hell to pay. Did the DIVARTY commander understand that the air coordination authority might rescind his trust in the Division's Air Support Operations Center (ASOC) as an air control element of the theater air control system and no longer delegate the division airspace at all? The Colonel's approach had the potential to 'go sideways' very quickly for the Army, with repercussions outside of just the division. However, as the commander continued speaking, it became clear that not only had he 'gotten the message' of the past week, but that his perspective and understanding of risk, was perhaps deeper than many of his contemporaries on either side of the Army/Air Force service divide.

The DIVARTY commander not only acknowledged the risk he and the division were taking, but how they intended to mitigate it in a concerted effort to buy down risk to the joint force, and not just the Army. The decision to engage with counterfire was not an endorsement of the flippant 'big sky, little bullet' theory that he had often heard from lazy peers as a young artillery officer, but was a carefully considered approach, based on decades of operational experience, familiarity with existing systemic limitations, empirical data from exercises, and an awareness of the current threat that should rightfully change our attitudes toward risk acceptance.

Given that context, this article seeks to create a broader understanding of the enduring importance of responsive counterfire for ground forces on today's battlefield. Furthermore, it hopes to use the example of counterfire to change joint force attitudes towards risk acceptance as the military looks toward more integrated multi-domain/ all-domain activities in a highly dynamic and lethal environment with strategic implications. Lastly, this article intends to reinforce the mitigation responsibilities of those who accept risk to achieve a greater degree of joint and air-ground integration and promote possible future solutions as well to lessen those burdens.

Defining what constitutes an acceptable level of risk for counterfire requires a reexamination of why the tactic remains relevant to the land component on the modern battlefield. Clausewitz’s axiom that "the nature of war does not change" and that premise holds true for ground combat especially. In the last two decades, warfare in the land domain has evolved at a rapid rate driven by technology, globalization, and great power competition that has created a battlefield that is not only hyperactive but more lethal than at any point in history. The result, which our national security documents

have acknowledged, is that our approach to operating in this domain must likewise evolve to accommodate this change. With the Army's shift toward (once again) preparing for large-scale ground combat operations, the battlefield calculus for determining success or failure has introduced new variables.

The recent conflicts in Crimea[1], Syria[2], and Nagorno-Karabakh[3], provide numerous examples where the lethality of otherwise conventional field artillery systems was significantly enhanced by the ability of combatants to improve both the quality of targetable information, speed, and delivery of effects via semi-automated weapon systems with increased range. The results in each case were alarming. This improved lethality increases the value of removing these artillery systems from the battlefield in the most expeditious manner possible. Proactive counterfire, in the form of deliberate targeting, should be the most important part of that process. However, given the prominence and role of artillery formations in our competitors' armies; the emphasis they are placing on mobility and survivability in their modernization strategies[4]; and the likelihood of a contested air domain, it would be dangerous to presume that joint targeting alone is up to the challenge. Considering its other operational and strategic priorities, joint assets will be limited at the tactical echelon, especially at the onset of a crisis, where adversaries will seek to translate near-term tactical victories into operational and strategic fait accompli. In the interim, joint assets may prove insufficient to change the correlation of forces to such a degree that friendly ground troops can retain freedom of maneuver and the initiative. In light of this, the ground force must be equally adept at delivering an effective counterpunch at the tactical level to stave off a potential operational defeat. Logically, this environment should necessitate a review of our perception of risk and perhaps a re-evaluation of our methods of articulating that risk in time and space across the Joint community.

Living in the "Zone of Discomfort"

Over the past 20 years, the U.S. military has focused efforts on dealing with limited-war and combating violent extremism in its many forms. This environment lent itself professionally and socially to a culture of risk avoidance across the force and within American society. This theme was reinforced by the military itself, which perpetuated an idea that wars could be antiseptic in their execution, with limited collateral damage among civilians, and reduced loss of life amongst combatants. With the development of the 2018 National Defense Strategy and the recognition of enduring near-peer competition, this dynamic is changing. America, its military, and its Allies are slowly waking up to the realization that threats to our way of life persist and may one day have to be dealt with. Despite this new awareness, the implications of this reality remain difficult to come to terms with operationally. A former G3 of US Army Europe once succinctly put it, "We have to get used to living, training, and fighting in a "Zone of Discomfort". A condition he described as being at the nexus between our experience of fighting wars without existential threats, which allowed the military to prioritize 'risk to force' above nearly all other considerations, and the need to adapt our way of thinking to accommodate the new operational reality where the risk to mission has increased exponentially for all. This can be illustrated using the rudimentary model below (Figure 1), in which the joint force risks mission failure if its 'risk to force' is not appropriately

balanced with the actual threat, which may or may not align with its perception of that threat (depicted in red). At one end of the spectrum, representing our historical environment, behavior is almost universally and understandably, risk-averse. Likewise, on the other end of spectrum, when the threat is fully recognized as existential, decision makers will undoubtedly accept a much higher degree of risk. However, short of that, the leaders are much more susceptible to inappropriate levels of risk aversion based on perceived risk, which may not accurately be reflected in the environment.

Within the "Zone of Discomfort", leaders must decide whether to accept greater risk to force than they normally would, based on a perceived degree of mission risk; or conversely, risk mission failure based on self-imposed constraints that inhibit potentially high-risk/ high-payoff actions. To further complicate matters, as we assess risk in the multi-domain environment, leaders will have to make difficult decisions about what truly constitutes a risk to joint missions worthy of a corresponding risk to joint forces.

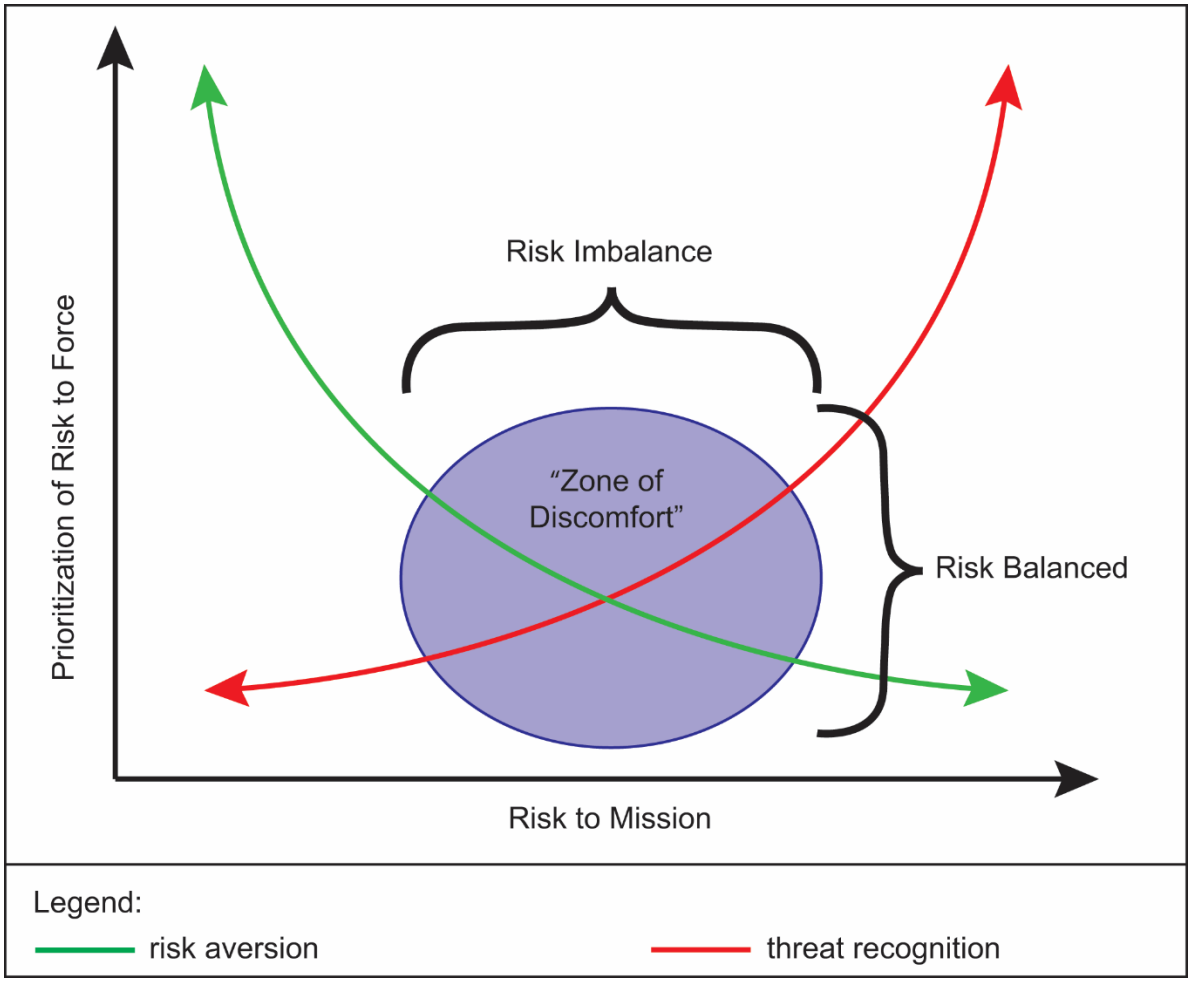

Figure 1 Risk Acceptance Model

Counterfire is a perfect example of this type of risk conundrum, as it juxtaposes the survival of a land force formation against the potential risk to an air based capability. Living in this reality may require a pragmatic quantitative 'sabermetrics-style'[5] approach

to risk analysis which weighs the potential cost of a joint asset(s) (its capabilities and future value) against the corresponding loss of another formation in pursuit of the joint force commander's objectives and elevates the thinking of tactical-level leaders to operational and strategic effects. This idea, strikes at the heart of the concept of 'acceptable level of risk' by begging the question, "acceptable to whom and for what?" It further demands that we ask, "What must be conceded jointly to accommodate the risk requirements of all?"

Buying Down the Cost of Joint Risk

During military operations, risk is a constant in the environment. The challenge for the joint force is how to balance and reduce the risk on the friendly side, while simultaneously transferring that risk to the adversary. This suggests that in the context of imposing risk on the enemy through counterfire, a decision to fire without regard to airspace, transfers most of the risk associated with that activity on the friendly side to the air component. Likewise, a decision not to fire places all risk on the land component. On its surface, this may be acceptable in certain circumstances. One of the ideas underwriting 'supporting/ supported relationships' in joint doctrine is that one component assumes more risk (supporting) during a given operation, thereby decreasing risk for another component (i.e. the supported/main effort) which is responsible for the accomplishment of the mission.

From a quantifiable standpoint, the correct decision in this situation would be an equation that calculates and compares the likely percentage of catastrophic effects for the present and future value of each force and their relative missions. However, since future value of losses across the tactical, operational, and strategic levels of war are inherently difficult to know, this cannot easily be done. This simplistic approach, which essentially is the idea behind 'big sky little bullet', does not hold up under scrutiny and all possible methods should be taken to reduce the likely percentage of catastrophic loss across to the joint force through mitigation measures up to the point of diminishing returns relative to the mission. These mitigation measures constitute a joint acceptable level of risk, essentially creating a 'floor' for the "joint risk to force" and enabling confidence for decision-makers on all sides operating within the “Zone of Discomfort”.

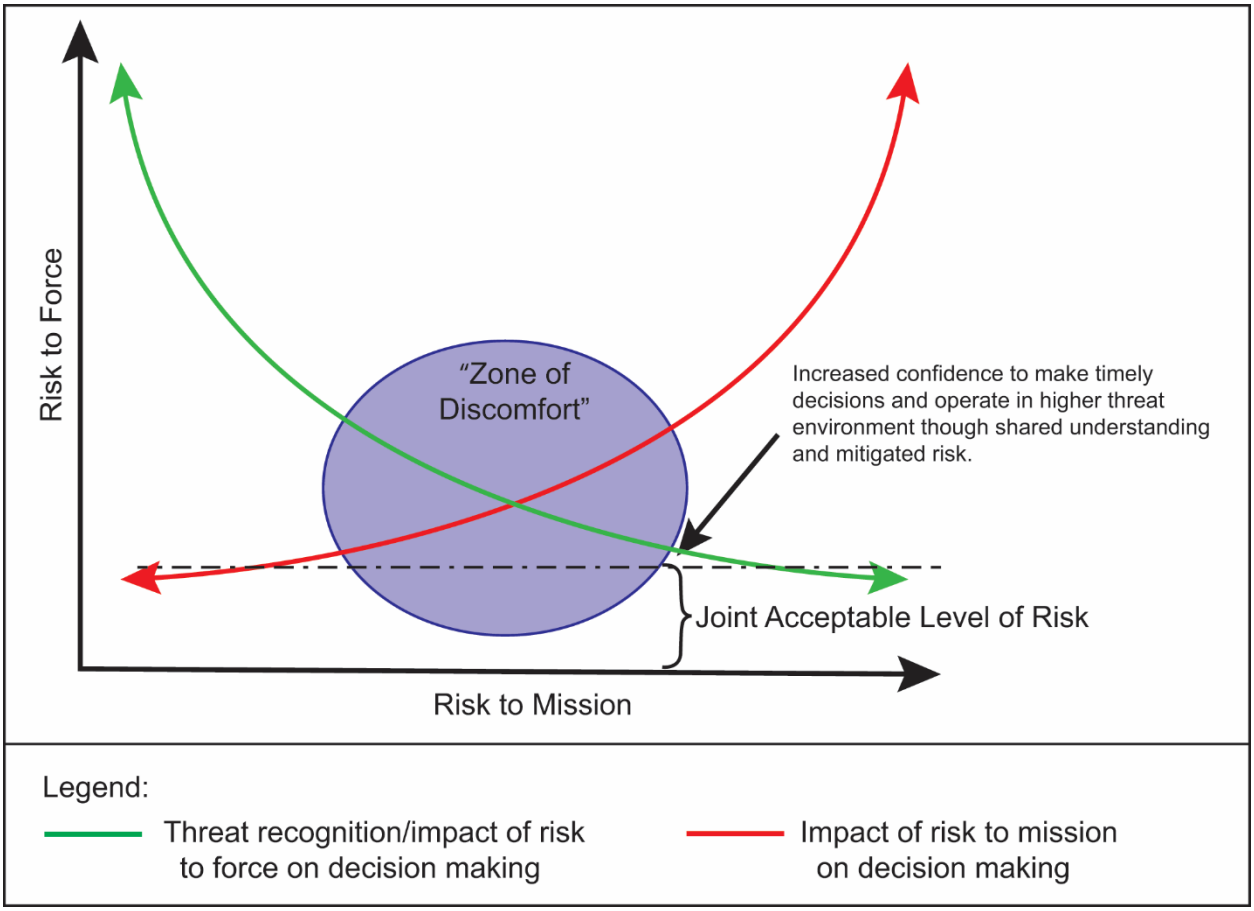

Figure 2 Risk Model with Joint ALR "Floor"

Establishing the "Floor": Current and Future Mitigation for Counterfire

To get to the edge of the "Zone of Discomfort", the services need to take a comprehensive approach to risk mitigation that includes evolving our doctrine, organizations, material, and training for the future; while employing our existing methods and capabilities up to the limits of their effectiveness right now.

On the land side, this means commanders who use airspace, at all echelons, must hold their formations accountable for the development and distribution of robust unit airspace plans. Army commanders would never accept a ground-based scheme of maneuver that was not accompanied by graphics and should rightfully extend that same attitude toward ensuring the organization of their battlespace in the vertical dimension. This is the plan from which later actions and activities, including the assumption of risk, should derive. Once established, the risk must be constantly and deliberately managed, based on the progress of the battle, and emerging opportunities, threats, and requirements. Deliberate management implies the proper delegation of authorities to actively manage airspace within the commander's intent. It also suggests the formation of processes and systems, such as an airspace control working group or similar battle rhythm event nested within the targeting cycle of the associated headquarters, to ensure that those delegated with airspace integration authorities are enabled with the most comprehensive appreciation of the situation possible.

Airspace requirements and the implications of all sensors, shooters, and consumers of airspace across all warfighting functions must be considered and incorporated into planning. Like most integrated processes this is not the sole responsibility of the airspace officer but a collaborative effort amongst the staff. In doing so, subordinate commands can identify aspects of the plan that increase complexity and the risk of fratricide and look for alternatives that minimize the use of available airspace and improve air-ground integration while accomplishing the same effects. An example of this might be; conducting artillery raids to strike targets that might otherwise require long-range ammunition and painstaking coordination with multiple air control elements. Once the plan is published, elements of the theater air-ground system should use the available time to rehearse the activation, deactivation and modification of airspace control measures integrated in the combined arms and technical rehearsals with our digital systems across the joint force.

Soldiers of 210th Field Artillery Brigade, 2nd Infantry Division/ ROK-U.S Combined Division, conduct operations in a simulated chemically contaminated environment during a combined counterfire exercise at Thunder Field, Camp Casey, South Korea, Jan. 27, 2016. (Photo by CPL Jaewoo Oh, USA).

On the air side, beyond fielding and equipping the appropriate subject matter experts and liaison officers at the various Army command posts to enable integration, this environment means stricter adherence to procedural control when operating in close proximity to friendly ground troops. At the wing level, it also means closer coordination with ground liaison officers and greater awareness of where the counterfire fight is likely to occur.

From a training standpoint, air control elements and Army command posts should have enduring relationships which build trust in each other's processes and systems. It is this

enduring relationship that will engender confidence to act in an inherently risky environment. History has shown that this happens organically in combat over time, but it is in the early stages of an operation where errors or miscalculations occur, and the components are inherently risk-averse. To achieve a 'graduate-level' discussion on risk acceptance between the services, air-ground integration planning and active airspace management is something that must be developed through realistic progressive training. This begins with common individual education and academics, achievable through courses like the Joint Firepower Course (JFC), Echelons Above Brigade Airspace Course (EABAC), and Joint Air Operations Command and Control Course (JAOC2C). However, this education is just the baseline, confidence can only be achieved through joint collective training conducted regularly at echelon. The most effective training of this kind will utilize as many components of the theater air-ground system as possible.

As a vignette to articulate how this battlefield framework has evolved and how some organizations have embraced the need for greater joint integration, we can point to the recent experience of the 1st Armored Division Artillery in organizing the counterfire fight during Warfighter 21-04. During this exercise, 1st Armored Division, enabled by the 7th Air Support Operations Squadron's ASOC, executed counterfire operations leveraging a Joint Air-Ground Integration Center which had conducted numerous joint collective training events in the lead up to the Warfighter. This training included several weeks of specialized joint air-ground integration training at Hurlburt Field, Florida, home of both the Army Joint Support Team and the 505th Command and Control Wing. As a result, counterfire times below the coordinating altitude (CA) were significantly lower than historical averages, even while airspace remained actively managed and procedurally controlled by the ASOC. While not every fire mission below the CA required ASOC active deconfliction, the acceptable level of risk remained low because intelligence preparation of the battlefield had effectively identified the most likely areas in which the counterfire fight was expected to occur, and unit airspace plans (cognizant of those high-risk areas) had prevented aircraft from straying into those hazard areas. This allowed the division's organic fires to regularly engage targets based entirely on technical means through the Army mission command systems. Essentially, if the machine did not indicate a violation of a fire support coordination measure or airspace control measure, the division artillery shot. Ultimately though, this degree of integration was possible, because the ASOC was willing to accept risk on behalf of the air control authority that an incident was unlikely to occur, based upon the situational awareness they had achieved, their familiarity with the organization, and their confidence in the procedures they had established and trained on alongside their Army partners.

Modern Problems Demand Modern Solutions:

While an underlying bedrock of trust between the services will always be important to joint operations, our challenges to improved domain integration should look for doctrinal and material solutions as well. From a counterfire standpoint, to reduce risk and create more latitude for joint maneuver the services need to work together on improving the theater air-ground system (TACS)/ Army air-ground system (AAGS) and design a mechanism for the dynamic automated positive control of airspace. The Advanced Battle Management System (ABMS), currently being experimented with by the Air

Force, which seeks to link all sensors, shooters, and C2 nodes could be part of that solution. Utilizing artificial intelligence and with all sensors, shooters, and controlling agencies linked, the joint force could create a digital system analogous to a "Fokker's Interrupting Gear"[6] for controlling indirect fire. This system would replicate the machine gun mechanism of early 20th Century aircraft that allowed the weapons to fire forward from the cockpit, between the spinning blades of an aircraft, while in flight. In a modern context, with better awareness of the relative positions of aircraft, artillery, and weapon characteristics, ABMS, in collaboration with Army fire control systems, could deconflict airspace seamlessly without human involvement. Fire/ no-fire criteria could be measured in milliseconds by technical means. However, to achieve this, ABMS must be prepared to deal with the scale and complexity of Army airspace requirements and that requires extensive Army support to ABMS development. If the services work together on development projects such as this, which enable joint domain integration, instead of within organization stovepipes, the results will ultimately yield a reduced risk profile and more timely solution.

The Way Ahead

Recent events in Ukraine and elsewhere has shown that the joint force cannot assume that it has the luxury of time to arrive at the perfect solution to the challenge of responsive counterfire. The joint team must become better at utilizing the imperfect methods it has today to accomplish the mission in large-scale combat operations and survive in the “Zone of Discomfort” while coming to terms with risk acceptance. To bridge the gap between the current situation and the desired end state of dynamic positive control, the military will require greater investment in air-ground integration across a breadth of areas. From a training perspective, this means more training for the commanders and staff of all services, with greater emphasis on airspace management and its importance at lower echelons. From a doctrinal perspective, it means assessing whether the existing procedures and vocabulary are sufficiently clear to enable joint understanding, or whether near-term refinement is necessary. From a manning perspective, it means recruiting and retaining more airspace/battlespace managers and fielding more LNOs across the joint force. From a material perspective, it means prioritizing the acquisition of interoperable modernized command-and-control systems that will enable situational awareness and decision making. And further, as the military looks more broadly, from a policy perspective, it will mean engaging in difficult conversations with Allies and partners about investments they should likewise be making alongside us so that we can work together jointly. These investments, and others, will be money and time well spent and will go a long way toward filling the gaps in our approach to joint operations and meeting the enduring requirement for a responsive counterfire capability.

Perhaps most importantly, beyond the example of counterfire, from a philosophical perspective the lethality of the modern battlefield suggests that a reexamination of how the joint force addresses risk in large-scale combat operations is necessary. We must recondition our warfighters to think outwardly in terms of accepting prudent risk to the joint force and their collective mission, while remaining mission focused on both the current and future fights of their formations. To reinforce this, we could incentivize prudent risk taking in exercises by rewarding decisions which seek to more fully

integrate tactical airspace while punishing risk-averse behavior within the context and capabilities of the threat. The force could also take steps to desensitize aircrews and air staff to operating in proximity to surface-to-surface fires by conducting more live, constructed, and virtual joint training. It is not beyond our capacity to accomplish this, but operating in this new hyper-lethal, hyperactive, hyper-complex environment will require a greater understanding of each other's challenges, closer cooperation in addressing joint shortfalls, and facing joint risk in a joint way.

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