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14. ABSTRACT

To meet emerging capabilities required to defend dispersed air bases under the Air Force's Agile Combat Employment (ACE) operating concept, Security Forces should invest in signature management, electronic warfare, and Counter-small UAS (C-sUAS) by organizing and training two new Air Force Specialty Code shreds: a Signals Specialist and a sUAS Specialist. Additionally, designating ACE Defense Teams (ADETs) that train, certify, and deploy as one cohesive unit will better meet the projected needs of a Geographic Combatant Commander engaged in high-end combat.

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MASTER OF MILITARY STUDIES

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DEFENDING AIRFIELDS TO SUPPORT AGILE COMBAT EMPLOYMENT: ORGANIZING AND TRAINING FOR THE HIGH-END FIGHT

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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Executive Summary

Title: Defending Airfields to Support Agile Combat Employment: Organizing and Training for the High-End Fight

Author: Major Phillip A. Zencey, United States Air Force

Thesis: The Security Forces community should establish new specialty shreds to grow its ground-focused capability in tactical communications and in small Unmanned Aircraft Systems (sUAS) operations, while tasking and certifying purpose-built teams from across the career field to fill the demand for austere airfield security required by the Air Force's Agile Combat Employment (ACE) concept.

Discussion: ACE is one of the Air Force's emerging operational concepts for regaining the initiative in potential A2AD environments. Also referred to as dispersed or agile basing, the ACE concept utilizes a high number of varying, temporary airfields to resupply combat aircraft to enable forward projection of airpower at a high operations tempo. This model will place new demands on the Air Force's combat support functions, requiring new operational concepts and capabilities. USAF Security Forces are responsible for securing these airfields against postulated threats posed by ground forces, indirect fires, and sUAS. Rapidly emerging adversary capabilities drive the need for new skills and employment constructs to assure effective ground defense of temporary airfields.

Conclusion: This analysis draws upon parallel efforts by other ground-focused combat forces in the joint community and advocates for Security Forces to invest in signature management, Electronic Warfare (EW), and offensive and defensive sUAS capabilities by establishing two new specialty shreds: a Signals Specialist and a sUAS Specialist. Furthermore, this work establishes the case for designating home-station units to source ACE Defense Teams (ADETs) that train, certify, and deploy as one unit to meet the projected needs of a Geographic Combatant Commander engaged in high-end combat.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Preface

I am immensely grateful for the opportunity to spend a year learning from the long tradition of adaptability within the United States Marine Corps. My intent with this work was to draw from evolving Marine Corps operating concepts to illuminate methods that the Air Force Security Forces community can utilize to better protect the Airmen and assets entrusted to us. I want to thank Dr. Richard DiNardo for his support and feedback throughout this journey. I am likewise indebted to Mr. Donald Bishop for his significant contributions to this effort and for his base defense experience in Vietnam. My work was also informed by two of my prior Security Forces commanders: Colonel Joseph Musacchia and Colonel Derrick Weyand, who have both greatly shaped my operational and academic development. Finally, I want to thank my wife, Jessica, for her years of service wearing the uniform and for her help in conceptualizing and editing multiple stages of this effort. Any errors or omissions in this work rest squarely with me.

Introduction

Since the end of the Cold War, America has enjoyed relatively unmatched military superiority. Without peer threats, American military options could reasonably presume unchallenged air, space, and maritime dominance from which to project power and support ground operations. Competitors studied these methods and developed capabilities to counter the fundamental strengths of American power projection. Near-peer competitors can now target American platforms with effective, long-range, precision weapons to deny access to critical areas, limiting America's military and diplomatic power to curb malign behavior. These new denial strategies require America to rapidly evolve to retain its global leadership, assure its allies, and uphold international stability.

When evaluating the Air Force's ability to project power from airfields, it is increasingly clear that nearly all elements of combat support will need to adapt to the emerging environment or risk becoming irrelevent and ineffective. Multiple government publications frame the problem and convey a sense of urgency. The joint community has established several operational concepts to address the (Anti-Access/Area-Denial) A2AD challenge, which then inform the capabilities and skills required to support those concepts. There is also substantial literature grappling with how to best improve training and organization to develop necessary combat support capabilities.

Air Force Security Forces (SF) lead the service's Integrated Base Defense program. The return to near-peer competition and the potential high-end fight requires developing new operational concepts, capabilities, training, and organizational constructs to defend aircraft from a technologically advanced adversary when they are most vulnerable on the ground. The Air Force's Agile Combat Employment (ACE) and the US Marine Corps Expeditionary Advanced

Base Operations (EABO) concepts both illuminate the defensive requirements necessary to assure the continued power projection of Air Force assets in a highly mobile, high-ops tempo environment. The most significant capability gaps indicate a need to invest in signature management, multi-domain situational awareness, ranged lethal fires, and small-team proficiency. The Security Forces community should establish new specialty shreds to grow its ground-focused capability in tactical communications and in small Unmanned Aircraft Systems (sUAS) operations, while tasking and certifying purpose-built teams from across the career field to fill the demand for austere airfield security required by the Air Force's ACE concept.[1]

Problem Framing: A Sense of Urgency

For most of the past decade, statesmen and military leaders warned of the growing capabilities of peer and near-peer competitors. Public documents communicate the growing threat and the deliberate military investments that near-peers are making to offset America's unchallenged ability to deploy national instruments of power. America's forward projection of military power currently relies on large forward bases or fleets to flexibly mass military capability. Competitors developed long-range precision fires and attritable platforms to counter America's reliance on these centralized power projection platforms. The Joint Operational Access Concept explains the difficulties inherent in an adversary's use of A2AD, which seeks to "deny US access and freedom of action" across all warfighting domains.[2] This strategy deliberately places America's expensive assets at risk, with an aim to dissuade American intervention in foreign affairs during grey-zone conflict and simultaneously creating significant challenges for the US in a future high-end fight. The fundamental challenge for the Air Force is that today's airpower requires large, fixed runways for munitions, maintenance, and fuel. Air bases are high payoff military targets that offer strategic and political effects when destroyed.[3]

Adversaries now have precision, long-range missiles and one-way unmanned aircraft in sufficient quantities to hold coalition air bases at risk, threatening the ability to achieve local air superiority in future conflicts. Furthermore, air bases are a lucrative target for adversary Special Operations Forces (SOF) utilizing ground attack methods such as precision rocket, mortar, surface-to-air, or UAS fires.[4]

As the 2016 Security Forces Flight Plan identified, "SF must be postured to defeat threats up to and including small tactical units capable of raids, indirect fires and surface-to-air fires."[5] The proliferation and weaponization of small commercial drone technology since 2016 adds another layer of complexity, driving the Deputy Director of Security Forces, Ms. Heidi Scheppers, to call for a "digital layered defense system across all domains" at the July 2020 AFWERX Fusion Conference.[6] AFWERX, inspired by SOFWERX, seeks to reduce acquisition timelines by linking military and civilian talent to achieve "rapid and affordable military capability."[7] The sense of urgency is clear; the defense community is rapidly developing new warfighting concepts that will impact how SF secures power projection assets.

Operational Concepts

Throughout the past decade, the Air Force created a new dispersal concept known primarily as Agile Combat Employment (ACE), which offsets an adversary's ability to target US fighter aircraft by reducing the reliance on a small number of central bases and instead generates airpower less predictably across a larger number of dispersed, temporary airfields. This base-hopping, shell-game strategy will place significant demands on Command and Control (C2) structures and the agile combat support community.[8] The RAND Corporation is heavily involved in supporting Air Force efforts to conceptualize ACE. A recent RAND report on *Distributed Operations in a Contested Environment* suggests three general basing types: a Stay and Fight

base, a Drop-in base, and a Fighter Forward Arming and Refueling Point (FARP), with the last two temporary base types posing the greatest challenge to the support community and the force protection mission.[9] The small footprint and limited infrastructure will reduce the depth of resources and manpower upon which SF have relied during the last two decades of counterinsurgency operations (COIN). The ACE concept disrupts an adversary's targeting cycle by dispersing and rapidly moving bases, but a thinner defensive footprint increases vulnerability to shorter-range standoff weapons and ground attacks if enemy forces locate dispersed locations.

Just as the Air Force is looking for ways to assure its power projection capabilities, the Marine Corps is developing concepts to support the Navy's projection of maritime power in the A2AD environment. The USMC's Expeditionary Advanced Base Operations (EABO) concept provides decision makers with options by projecting inside forces into the contested space to restore the initiative, enable persistent forward presence, and enable greater naval capabilities.[10] While naval power projection is different in many ways, the EABO concept offers significant parallels that can help inform the joint community as they tackle dispersed air operations, including the idea of fusing the "strategic offensive and tactical defense," the dual-postured nature of forces inside and outside the contested zones, and flipping the A2AD concept on the enemy by applying long-range missiles to deny adversarial access to key terrain.[11] As the Marine Corps and Air Force explore how to defend these light, austere bases, both services should work together to develop the principles and capabilities needed to protect operations in complex, contested environments.

Born of necessity, the Security Forces precedent for securing aircraft in austere, temporary sites is focused on the aircraft itself and is supported with a small team of two to six specially trained Defenders who fly with the aircraft, known as Ravens and Fly-Away Security

Teams (FAST).[12] To meet the demands of ACE at scale in a theater, combatant commanders will require many more small teams capable of independent operations. Additionally, the emerging EABO concept emphasizes that dispersed teams must "make a virtue of austerity" and operate as independently as possible to reduce the drain on the very system it is designed to support.[13] In his comprehensive history of Air Base Defense in Vietnam, Roger Fox highlights that the Security Forces ethos is rooted in a precedent of "self-help," a term he describes as a "Spartan can-do attitude in the teeth of adversity."[14] While this ethos is arguably a symptom of sub-optimal support services and a patterned lack of investment in the base defense mission, the self-help culture is also an operational asset in the ACE environment. Security Forces must develop its own modern Electronic Warfare (EW), beyond line-of-sight organic fires, and mobile Counter-small UAS (C-sUAS) capabilities to avoid taxing other AF Force support forces needed for higher priority missions.[15] As ACE support teams open and close airstrips throughout the theater, SF needs to invest in capabilities that minimize detection and defend against modern ground and air threats. SF capabilities that reduce the risk to mission and to dispersed forces ultimately provide flexible employment options to the Joint Force Air Component Commander (JFACC) to enable continued power projection in support of Joint Force Commander (JFC) priorities.

Capability Gaps

The doctrinal details of dispersed operations are still maturing, but the conceptual literature is sufficient to illuminate capability gaps and inform many future requirements for defending fixed sites. These capabilities largely fall into two desired effects: to reduce the probability of detection and to develop a force capable of defeating small ground and air threats should adversaries locate and target dispersed sites.

Minimize Detection

One of the fundamental assumptions of the ACE concept is that coalition forces will successfully disrupt an adversary's long-range precision weapons targeting cycle by outpacing their attempts to locate and damage aircraft when refitting at airfields. By moving rearming and refueling operations to various, temporary, forward staged airfields, the concept presents the adversary with multiple problems and with a continually shifting target list. One of the most critical aspects of enabling this concept is the ability of the support forces to remain undetected for as long as possible as they open temporary airfields. After decades of relatively uncontested ground and air dominance, the ability to reduce one's footprint across multiple domains will center on signature management, situational awareness, and pre-established relationships with partner nations.

Signature management is fundamental to avoid adversary targeting and it encompasses the electronic domain, the physical domain, and the cyber domain. The EABO handbook also illuminates some new skills and capabilities that will help reduce the risk posed to forward postured forces. Signature management is a primary concern, as EABO and ACE both conceptually rely on "the ability to confound the enemy's understanding of our force disposition and intentions."[16] The ability to manage signatures to avoid early detection and targeting by an adversary's long-range precision fires will be vital. A 2016 Department of the Air Force presentation to the House Armed Services Committee outlines several initiatives that may help defend dispersed air bases in an A2AD environment, including communications assurance, Electronic Warfare, and long-distance sensing.[17] The Air Force readily applies these new technologies to airborne platforms, but has not prioritized the role of the electronic domain in Integrated Base Defense. Security Forces will need to develop the capability to manage signal

emissions while the demand for data and shared battlespace awareness increases. ACE teams will need to balance competing needs between maintaining radio silence and transmitting the necessary information to headquarters or local partnered forces. Electronic assessment teams can help evaluate a unit's electromagnetic (EM) signature to inform procedural and equipment updates to reduce emissions. Security Forces should partner with the Marine Corps' new Electronic Warfare Support Teams or the Army's EW platoons to develop similar ground-centric EW capabilities to actively manage a dispersed team's electronic signature.[18]

Great power competition also highlights the need to return to several passive signature management techniques to minimize detection. In the physical domain, camouflage, concealment, and dispersal methods will help mitigate identification by commercial or adversary imaging. Operations Security (OPSEC) will also be vital in the cyber domain, where adversaries can use social media or exploit deceptive techniques to locate coalition forces. One somber example comes from the recent Ukraine conflict, during which a Ukrainian commander's mother received a call from someone claiming to be a government authority to tell them that her son had been injured. When she called his mobile phone, which he rarely used otherwise, the signal emission provided sufficient location data for Russian-backed forces to target the site with precision rocket fire, killing the commander while he was still on the phone.[19] USAF forces supporting the dispersed basing concept will need to minimize electronic, physical, and cyber signatures to evade an adversary's kill chain.

In addition to minimizing the liklihood of detection through signature management, Security Forces defending austere temporary airfields will need enhanced situational awareness capabilities to monitor whether their presence has been detected and to identify ground and air threats from distances that provide sufficient reaction time. Forces on the ground will need

access to multi-domain sensors including visual, infrared, electronic emissions, relevant social media posts, and nearby movements that indicate a shift in enemy targeting. To reduce the burden on the theater C2 in probable communications-denied environments, ground support forces must develop an organic capability. Many mobile solutions already exist that provide significant long-term detection capability, such as the van-mounted Wide-Area Infrared Sensing with Persistence (WISP) system that monitors for ground and aerial threats.[20] Other commercial tools such as Dataminr utilize Artificial Intelligence to sort through vast amounts of internet traffic and highlight specific criteria, locations, or flag words, raising situational awareness of any changes in the local environment in near real-time that may cue in the presence of enemy equipment, unusual activity, or forces moving in to the area.[21] With these types of analytical tools, social media effectively mimics millions of human sensors across the political and social terrain, offering valuable information to gauge public reaction to ongoing military operations. Security Forces needs to invest in developing these situational awareness skillsets organically and in a mobile capacity that will enable sensing their environment at temporary airfields across multiple domains.

Another significant factor in signature management is partnering with the host nations who own the dispersed airfields. At the strategic level, the Department of State and Department of Defense are expanding partnerships with countries that have critical economic and geographic roles in the Great Power Competition landscape. Combatant Commanders and embassies are developing the diplomatic, economic, and military relationships that enable support commitments and training investments. At the operational level, Security Forces has invested in Building Partnership Capacity (BPC) with several states in Europe and the Pacific and must continue the effort to facilitate the recurring familiarity that will support ACE tactical execution

at the individual airfield level. Most airfields utilized for ACE will likely have some civilian presence nearby, with the presence of military aircraft and personnel drawing attention and necessitating varying levels of interaction with local authorities and personnel.[22] As captured in Donald Bishop's recent *Inside the WEZ* article discussing the EABO concept, these local factors could make the difference between that unit's mission success or failure.[23] In addition to helping ACE teams minimize detection, pre-established relationships will play a vital role in helping Airmen handle the inevitable local interactions resulting from operating on dispersed airfields.

Defend: Delay and Defeat

The Security Forces community must prepare its small teams for lethal engagements should signature management be insufficient to evade detection. The historic solution to bolster security is to add manpower, but ACE's emphasis on flexible support across dispersed airfields will necessitate a small force at each location. Traditional security models that prescribe certain amounts of ground defense personnel are unachievable with the current force. These older constructs are inherently manpower intensive and distributing bases across a theater will create huge manpower taxes on the career field. One RAND report anticipates the SF manpower tax to support one notional wing dispersed across five airfields at 3,300 Defenders, up from 900 when co-located at one air base.[24] Assuming a relatively static growth model for the career field (a safe assumption in the fiscal environment) and the enduring demands of home station defensive requirements, new force multiplying capabilities are required to effectively secure dispersed ACE teams and assets. Small teams will carry the added benefit of decreased probability of detection, but the lower quantity will also require increased quality to enhance their lethality against small scale ground and air threats.

In their 2020 RAND publication, *Air Base Defense*, Vick, Zeigler, Brackup, and Meyers offer a more modern and holistic list of desired capabilities including ballistic missile defense, C-sUAS, Radio Frequency (RF) jamming, Directed Energy Weapons (DEW), and Short-Range Air Defense (SHORAD).[25] The US Army was assigned the ballistic missile defense mission in the 1950s and was recently assigned as the executive agent for counter-drone technologies.[26] Air Force Security Forces are doctrinally postured to defend against Level I (terrorists and saboteurs) and Level II (small tactical teams and special forces) ground threats.[27] SF is now also the Air Force's lead for countering small UAS threats.[28] Capability gaps examined here will focus on those most relevant to ground-based and tactical UAS defense missions, within the dispersed footprint envisioned under the Air Force's ACE concept.

Long-range sensing discussed previously is a critical capability to enhance situational awareness but is only one part of the kill chain. To assure defense in depth with such a small force, Security Forces must invest in longer range fires that enable lethal effects beyond line-of-sight, extending operational reach throughout the base security zone. Allen's 2014 article on Expeditionary Security Operations discusses the need to invest in technology that enhances protection against precision rocket and mortar fires, increases situational awareness and response speed, and better counters insider threats.[29] Traditional counter-mortar and rocket capabilities utilized over the past two decades are designed for fixed sites and often operated through a contract. Security Forces will need a light, mobile solution that can travel with the team on an aircraft without adding significant strain to the theater's airlift capacity. These beyond line-of-sight sense and shoot weapons will need to defeat lightly armored ground threats and sUAS.

Loitering munitions offer a promising class of new weapons that may meet these needs. Many of these systems are man-portable, tube launched fixed wing aircraft that deliver a one-

way munition against armored targets up to 40 kilometers away. Selecting these standoff capabilities would greatly enhance a team's ability to defend against emerging ground threats well beyond the small-arms, direct fire range of weapons currently carried by Security Forces. Tactical airborne platforms, known as "blue-UAS", include small fixed-wing and quad-copter platforms that can provide increased situational awareness, communications and data relay, lethal fires, resupply, and emerging new capabilities that are only limited by one's imagination. Swarms of unmanned lethal platforms controlled by small teams would deliver massed effects on a ground force attempting to attack dispersed airfields.

In addition to long-range sensors and weapons to keep an adversary beyond line-of-sight, maneuverability remains central to any successful defensive counterattack. Existing small four-wheeled platforms offer light, fast mobility that can fit on a cargo aircraft. Additionally, some emerging commercial technologies may revolutionize how small teams achieve mobility in the near future. The Air Force established the Agility Prime project, partnering with the commercial sector to develop advanced air mobility vehicles, colloquially known as "flying cars," with many prototypes already capable of sustained flight with two to four people on board.[30] These vehicles will have significant applications for tactical mobility, possibly replacing or augmenting the current wheeled mobility at the heart of current Security Forces tactics.

Another critical capability that small defense teams will require is reliable, secure communications at the site to coordinate actions before and during any hostilities. Except for a few specialized units, most Security Forces units rely on other squadrons to provide radio communication capability at fixed sites, but ground defense capability is rarely the priority for support units focused on supporting flying operations and base infrastructure. Consistent with the previously mentioned self-help ethos, the ACE concept will require Security Forces to be

proficient in establishing their own radio network at austere sites, with increasing sophistication in data transfer, security protocols, and joint interoperability to establish a common operating picture. The Security Forces community must grow this expertise internally to ensure its secure tactical communications and electronic signature situational awareness in austere environments.

Organizational Adaptation

Organizational flexibility is arguably the most important factor that determines whether a nation successfully translates technological innovation into meaningful capability in war. Massive technological gains between the World Wars translated to military victory during the second World War through successful organizational alignment. Airpower in the Navy flourished largely because they maintained control of their own aircraft and were able to test and develop the aircraft carrier and prove the new role of aviation in naval operations.[31] Through the Air Corps Tactical School and the partial autonomy granted to the Army Air Corps to develop strategic bombing, long-range aircraft played a critical role in targeting Germany's industrial capacity during the war.[32] In the Marine Corps, a separate service redefined its identity through the effective organizational alignment of guidance provided by the Office of the Commandant, creativity by the Marine Corps schools, and tangible proof of concept executed by the Expeditionary Force. These forces combined their efforts and wrote the manual that formed the basis for both the Army and Marine Corps island hopping campaign in the Pacific and the successful allied Normandy landing.[33] Successful organizations align various functions to support a unified goal, bringing intellectual rigor and tangible execution to operate in alignment toward a new concept. While it is impossible to predict exactly which organizational changes will ultimately result in the most effective innovation, the organizational flexibility itself is a

critical factor to creating a climate of adaptation that will enable success as the character of war transforms. Failure to change guarantees greater difficulty, if not outright defeat, during conflict.

In the past few years, the Security Forces community has been electrified with discussions centered on how to better defend Airmen and assets in the new high-end fight. Many bases experimented with new organizational constructs to make squadrons more effective. The "Squadron of the Future" concept tested a new alignment of traditional staff functions around emerging operational concepts, but in March 2021 the SF Executive Board announced that the pilot program did not yield the anticipated benefits and that it would explore different organizational constructs in the future.[34] While this specific realignment did not come to fruition, the willingness to experiment with new organizational structures demonstrates a degree of the organizational flexibility needed to meet future challenges. The rapidly evolving Counter-sUAS mission will require a formal framework to develop advanced skills, tactics, and doctrine for countering this new group of threats. However, the career field has not yet determined whether to formalize this new skillset through an Air Force Specialty Code (AFSC), sub-specialty, or Special Experience Identifier.

While current efforts focus on better defending established main bases, the ACE concept will require new Force Presentation methods to enable flexible, mobile defense of dispersed and temporary base locations.[35] Caudill, Roberts, and Miner examine this concept in *AirSea Battle and the Air Base Defense Shortfall*, suggesting that several existing SF units are potentially well-suited as scalable models for defending the various base sizes envisioned in ACE. Air Mobility Command's Phoenix Raven program provides small teams of two to six SF to secure a specific airframe when operating at an austere location. Each of the Air Force's four Contingency Response Groups offer a flight (platoon-equivalent) of Defenders, while the 820th Base Defense

Group maintains three deployable squadrons (company-equivalent) for contingencies.[36] While these units are well suited to pioneer and evaluate new operational methods, they are not built or manned to provide security for the vast requirements anticipated in a theater-wide high-end fight. There is still a need to determine the optimal organizational construct needed to defend against sophisticated, modern attacks that, according to prior-Chief of Staff of the Air Force, General David Goldfein, "will likely include cyber operations, hybrid warfare, Special Forces, and enemy drones."[37]

Purpose-Built Teams

To meet the requirements envisioned in a peer-conflict, it is unlikely the Air Force will fund the growth of the 820th BDG and the CRGs, as the career field is already undermanned with validated, but unfunded billets. Therefore, it will likely be necessary to spread the manpower tax to support ACE at scale across the global SF community, as was done with deployment requirements for operations in Afghanistan, Iraq, and neighboring states over the past two decades. All active duty, guard, and reserve Air Force bases should be tasked to provide a set number of ACE support teams based on their ability to accept risk in certain home station requirements during a high-end conflict. These teams, notionally referred to here as ADETs (ACE Defense Teams), should be specially organized, trained, and equipped to bridge the capability gaps addressed previously. Each team should be regionally aligned and assigned to familiarize themselves with a finite number of airfields within a specific region, to encourage establishing depth of cultural and contextual knowledge rather than relying on a generic, one-size-fits-all approach. The home station unit responsible for each team would establish long-lasting partnerships with the host nation forces of the assigned airfields, helping with continuity as individual team members rotate through changes in duty station.

Additionally, these units could draw upon the National Guard's existing State Partnership Program, which developed long-term partnership with 84 participating nations throughout the world.[38] A unit that has a long-term interest in deploying to the same area is able to build increased cultural proficiency and situational awareness of the human and geographic terrain, which will greatly enhance effectiveness during a potential high-end fight. This investment would also establish the relationships necessary to build rapport with and confidence in host nation forces who will help provide outer security, reducing US signature and greatly enhancing the defensive posture of temporary bases. Tasked units could rotate ADETs through various levels of readiness phases, with one team in training status to achieve certification, another certified team on standby to deploy but helping with daily security at the home station, and a third team in a non-ready status where members are able to take leave or continue augmenting daily home station posting. Ideally, the training and certification phase would culminate in an exercise or familiarization mission to the nation who owns the assigned airfields, allowing the teams to establish a working relationship with the same teams they would work with during an operational ACE deployment.

To meet new national security priorities, the National Guard added seven Indo-Pacific countries in the last decade to its State Partnership Program, three of which were added in 2020.[39] As these new partnerships continue to develop, Security Forces Air National Guard units should train and certify ADETs by sending them to their partnered nation, investing in familiarization with the local law enforcement, security, and communities surrounding candidate airfields. National Guard ADET teams could also be activated in conjunction with regional training exercises, such as the Resilient Typhoon exercise in 2019, when Air Force aircraft dispersed to airfields on Guam, Tinian, Saipan, Micronesia, and Palau.[40] As future exercises

include more nations within the Indo-Pacific region, ANG teams should use the opportunity to conduct ACE support functions on their partnered nation's airfields.

ANG units should also deliberately train Airmen as linguists, in sufficient quantity and targeted to the dialects used by their partner state.[41] Though this requirement is not unique to SF, ANG wings tasked with supporting ACE should also be required to train several linguists to provide critical cultural knowledge and translating capability to the entire ACE ground support team. The Air Force established the Language Enabled Airman Program (LEAP) in 2013 to "develop language enabled, cross-cultural service members… [to] better support the application of air and space power through strengthening partnerships and interoperability."[42] The program includes a thirty-day Language Intensive Training Event (LITE) during which Airmen participate in a school, homestead, or security cooperation event in the region of study to build their language skills in a complex, immersive environment. During dispersed operations, demand for LEAP qualified Airmen is likely to exceed supply, especially in the Active-Duty forces. This ground-up effort is dependent on squadrons to recognize the need for culturally savvy Airmen and endorse the program.[43] Air National Guard units should deliberately enroll their Airmen in the LEAP program associated with their partnered state. During exercises and actual ACE deployments, the ANG airmen would attach to dispersed support teams to enable the support team to maintain cultural situational awareness and communicate with local populations while executing dispersed operations at an austere airfield. Airman in ANG units typically serve with their unit for much longer than Active-Duty Airmen, providing an opportunity to develop the depth of cultural and linguistic skills specific to their assigned nation. Investing in this capability is particularly vital in the recently added SPP nations where US forces do not have permanent bases or recurring annual exercises. Ideally, every ACE support team would have at least one

LEAP certified Airmen for their assigned region. Although this skill is outside the traditional security role, in the spirit of self-help and developing Multi-Capable Airmen, Active Duty and Air National Guard SF units should encourage their Airmen to enroll in the program to create a larger pool of language-enabled Airmen to support dispersed ACE teams.

New Specialty Shreds

The career field should also formalize skill requirements by establishing two new shreds under the existing Security Forces 3P0 Air Force Specialty Code (AFSC). Unlike Army or Marine combat teams, all Security Forces share the same AFSC and are trained in the same core tasks. Apart from two identified specialties for Military Working Dog Handler and Combat Arms, specific skills are developed through unit-level certification or through Special Experience Identifiers. Following the 1996 bombing of the Khobar Towers in Saudi Arabia, the Air Force merged the security, law enforcement, and combat arms career fields into one common AFSC to broaden skills and allow most SF members to be interchangeable.[44] Recognizing that certain skillsets require more in-depth training and ongoing familiarization, the career field should balance these competing interests by adding two more shreds: a sUAS Specialist and a Signals Specialist. The sUAS specialty would encompass both offensive and defensive Group 1 and 2 UAS operations, while the Signals Specialist would be responsible for establishing tactical data transmission networks and maintaining the Command-and-Control hardware and software to support Security Forces communications requirements. Each ADET should be manned with both shreds to ensure dispersed support teams have the skill depth to defend themselves against the range of modern ground and air threats.

History shows that organization plays a large role in successfully structuring human capital toward a given task and in determining how well a community aligns its training,

funding, and innovation toward a common purpose. Adversaries have purpose-built their militaries and proxies to target America's high value assets, including airfields and aircraft. If the SF community attempts to secure the Agile Combat Employment concept using the same structures deemed "good enough" for past conflict, the Air Force stands to lose significant lives and aircraft in a high-end fight until that adaptation occurs. By designating purpose-built teams and specialty shreds, SF will be better prepared to mitigate many of the risks associated with executing dispersed operations in a high-end fight.

Training Evolution

Over the past several years, as awareness of Great Power Competition gained greater momentum and urgency, the Air Force renewed its emphasis on training and readiness. The Security Forces career field similarly reorganized its training methods, converting from a "Just in Time" pre-deployment training model to a centralized, three-year cycle tiered to match experience level. These courses emphasize skill "proficiency" rather than "qualification," recognizing the need for repetition and depth of knowledge. The Security Forces Center is also examining the potential of virtual reality simulators to increase scenario iterations at a lower cost.[45] Other recent initiatives include the recent graduation of the first validated SF Weapons and Tactics Instructor Course, a four year effort to establish a centralized training and critical thinking course based on the Weapons and Tactics program used in the Air Force's flying community to test, validate, and share tactics across the global force.[46] These new training forums signal increased commitment to enhancing Defender proficiency in fundamental skills, but continued evolution is necessary to modernize the way the community conceptualizes security and trains teams to perform in highly contested environments.

Skill Development

To close the capability gaps identified previously in the areas of data transmission and sUAS operations, the community should creatively develop pipelines to train new SF shreds. One of the largest cultural barriers in the Air Force is that most career fields are fixated on supporting the air mission, with ground defense typically being an afterthought and only when brought up by the SF community themselves. There is often significant resistance or atrophy in applying technical skills, such as Electronic Warfare, RF transmission, encryption, imagery, or organic air support to ground defense applications. Due to these limitations, SF often looks to Army manuals to develop its defensive strategies and to train TTPs. The Army and Marine Corps are already incorporating UAS and electronic operations into their ground combat operations.[47] Rather than developing its own capability and proficiency from scratch by formalizing an in-house training pipeline, SF should work with the Army and Marine Corps to establish joint courses. With the emphasis on joint interoperability and both services focused on supporting ground operations, this approach would develop SF technical expertise within a similar ground-focused context while building inter-service familiarity and the potential for interoperability.

Counter-sUAS provides a salient example: the USMC has already fielded mobile C-sUAS capabilities to support ground forces. The Marine Air Defense Integrated System (MADIS) utilizes a pair of tactical vehicles to maximize mobility while providing electronic countermeasures to deny access to adversary unmanned aircraft.[48] In contrast, the Air Force is pursuing sophisticated static platforms designed to protect large, permanent installations. Focusing each service's research and development efforts on the systems most relevant to their needs makes sense, but to meet the mobile, flexible demands of ACE, the community must also be willing to capitalize on capabilities already optimized for ground-based maneuver warfare.

The Air Force can save significant time and money by adopting technologies and training already in use throughout the joint force.

Similarly, soldiers and Marines have been applying Electronic Warfare in ground operations for decades. The Air Force has air assets dedicated to this mission, but ground-focused EW is not incorporated into the community. In Iraq and Afghanistan, Security Forces incorporated some EW concepts in mobile and static Counter-Improvised Explosive Devices (C-IED) applications by utilizing jammers, but they relied significantly on Army systems and contracted expertise to source and maintain them. The proposed Signals Specialist should attend Army and Marine training courses to build their ground-centric expertise to capitalize on the capability and knowledge that already exists within the DoD. Rather than building its own redundant training pipeline, SF should include deliberately selected Army and USMC training courses to bolster interoperability and reduce DoD-wide duplication of effort.

Team Training and Certification

The Air Force faces some significant challenges with how it assembles teams to forward-project its combat capability. This is especially problematic in the support community, where deployed units are a composite of people from dozens of different home station bases, often meeting for the first time when they arrive at the deployed location. To meet the training requirements during the Global War on Terror, each Major Command established a Regional Training Center where Defenders would attend several weeks of training to hone skillsets unique to deployed environments by training on armored vehicles, combat patrols, IED detection, and outside the wire operations. Typically, this “just in time” training model grouped trainees by deployment locations and timelines, so that members would train with similar groups they were to serve with in theater. The current Tier model replaced the Major Command’s (MAJCOM) pre-

deployment training, with trainees now attending as individuals from their home station whenever their three-year currency requirement is due. Geared to achieve continuous proficiency in the common baseline of tasks at specific milestones in one's career, this model arguably offers advantages to home station units who can build on the common tasks in their specific context when students graduate from the courses. This model will likely not be sufficient to build the team performance necessary to secure temporary airfields in austere environments against a well-trained peer threat. Teams of Defenders will need to be ready to perform at a high level on day one in theater, not pieced together like machine parts on the battlefield.

To resolve this, the teams tasked to defend dispersed airfields should be trained, certified, and deployed as a team. The joint ground combat community provides another illustrative precedent. The Army trains and certifies its combat units at the National Training Center, where they are evaluated on the team's ability to perform a wide range of tasks against fictional adversary forces.[49] Similarly, the Marines train their Marine Air Ground Task Force (MAGTF) units at Twentynine Palms, California, using a similar model to certify the team's capabilities before tasking them to deploy.[50] Air Force Security Forces should use a similar model, expanding on recent successful concepts like the Security Forces Weapons and Tactics course. ADETs rotating into their deployment readiness cycle should be trained and certified as a team as the culminating event of their training phase. The existing Weapons and Tactics course resides under 20th Air Force and is aligned toward Air Force Global Strike Command's priorities, but its success may serve as a model for other Major Commands to build an ADET certification course.

Air Combat Command, Air Mobility Command, and their associated Numbered Air Forces should establish a combined course that focuses on the theater and mission-specific attributes that the gaining Geographic Combatant Commander will require. In either case, the

training and certification centers would not replace, but augment the career field's existing Tier training model. Tier training builds the foundational, individual skills that every Defender needs. Individualized training at existing Army and Marine Corps courses would build new technical expertise in the vital domains of communications and C-sUAS. MAJCOM or Numbered Air Force (NAF) training centers would then certify the tasked ADET units as they end their training cycle and transition to their readiness cycle. This training approach would greatly increase depth of knowledge to address capability gaps, while requiring a comprehensive team performance approach to reduce the piecemealing that currently occurs at deployed locations.

Recommendations and Implications

The continued rise of near-peer competitors and the pace of technological change requires evolving operational concepts, capabilities, training, and organization. To support the Air Force's ACE concept, Security Forces should close the capability gap in emerging ground-combat domains, including the tactical communications domain, the rapidly changing sUAS environment, and the ability to sense and shoot beyond line-of-sight. To evolve in concert with the pacing threat, Security Forces must organize and train purpose-built teams capable of providing combatant commanders with the ability to defend airfields in austere, high-threat, rapidly changing A2AD environments.

The SF community should create ADETs across all home station bases while establishing two new enlisted shreds to formally develop ground-focused skills in sUAS operations and in tactical communications. The career field should partner with the joint community to train these experts utilizing ground-centric knowledge already pioneered in Army and Marine combat units. Organizationally, purpose-built ADETs should maintain team integrity in training and readiness phases, certifying on collective performance at a MAJCOM or NAF course to verify their ability

to perform ACE specific missions in a highly contested environment. In the officer corps, Security Forces Company Grade Officers are now attending the Marine Corps Expeditionary Warfighting School, which is an important step toward improving tactical capabilities and concepts that span ground combat communities. Additionally, SF should partner closely with III Marine Expeditionary Force as they stand up the Marine Littoral Regiments in INDO-PACOM to capitalize on the parallel concepts, capabilities, and lessons learned between EABO and ACE. These proposed investments will close the capability gaps required to support the Air Force's ACE concept, while building emerging skills and institutional flexibility to keep pace with the evolving threat environment.

ACE was developed to mitigate the Air Force's vulnerability to an adversary's long-range precision fires, while maintaining forward presence along the engagement zone and presenting an adversary with multiple dilemmas. Central to the Air Force's ability to project that power, and its associated vulnerability, is the need for a runway. Reducing this reliance on runways may be the key to the next evolution of airpower projection after ACE. Modern aircraft still require runways to refuel and rearm, but the increasing trend toward precision long-range rockets, unmanned aircraft, and increasing ability of autonomous targeting may reduce the reliance on long, static runways in future conflicts. Small, dispersed missiles or vertical launch platforms, guided by a few, highly sophisticated manned Forward Air Controllers, may coordinate over vast distances to converge in the engagement zone and overwhelm adversary capabilities. Other possibilities include Jonathan Burdick's "Instantly Basing Locust Swarms" concept based on the idea that "small remotely piloted aircraft that do not require airfields or robust logistics may foster changes within the existing industrial maneuver warfare paradigm."[51] The exact nature of the next evolution of war is unknown, but as the EABO handbook describes,

new swarm technologies and other future systems will be "optimally deployable from Expeditionary Advanced Bases".[52] Similarly, lessons learned during ACE operations at dispersed air bases may translate directly to projecting aircraft swarms, missiles, or other innovations in the future. To meet the increasing rate of innovation and its impact on operational employment, Security Forces must proactively foster the organizational flexibility to defend increasingly dispersed power projection assets in highly contested, complex environments.

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