



2012-3

Integrated Defense

Lessons Learned from Joint Base Balad

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Report Documentation Page

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OMB No. 0704-0188

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1. REPORT DATE 2013	2. REPORT TYPE	3. DATES COVERED 00-00-2013 to 00-00-2013	
4. TITLE AND SUBTITLE Integrated Defense: Lessons Learned from Joint Base Balad		5a. CONTRACT NUMBER	
		5b. GRANT NUMBER	
		5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)		5d. PROJECT NUMBER	
		5e. TASK NUMBER	
		5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Research Institute, Air University, Maxwell AFB, AL, 36112-6026		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)	
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited			
13. SUPPLEMENTARY NOTES			
14. ABSTRACT			
15. SUBJECT TERMS			
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	Same as Report (SAR)
			18. NUMBER OF PAGES 72
			19a. NAME OF RESPONSIBLE PERSON

AIR UNIVERSITY
AIR FORCE RESEARCH INSTITUTE



Integrated Defense
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Research Paper 2012-3

Air Force Research Institute
Air University Press
Maxwell Air Force Base, Alabama 36112-6026

Published by Air University Press in 2013

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Executive Summary

Air and space power is most vulnerable on the ground. Thus, force protection is an integral part of air and space power employment.

—AFDD 1, *Air Force Basic Doctrine*

Since the inception of airpower, airmen have struggled with the dilemma of how to protect the capability to fly, fight, and win. When aircraft are removed from their natural environment of the air and returned to their bases, they become vulnerable, like any bird of prey in its nest. Base defense—defending one’s air assets on the ground—is one of the least understood operational aspects of airpower. The current US Air Force (USAF) strategy for defending air bases is integrated defense (ID)—formerly known as air base defense or air base ground defense. This study examines the first full implementation of ID in a combat environment to evaluate the effectiveness of the new strategy in actual operations. The research question is What can be learned from the ID experience? and to take this further, What are important considerations for future operations?

The US Air Force historically considered threats outside the air base perimeter to be the responsibility of either sister services or host nation forces. Vietnam and the first Gulf War demonstrated that these organizations may not have sufficient forces to perform exterior air base defense missions effectively or may be willing to accept risks air base commanders deem unacceptable. As a result, the Air Force began evaluating its strategy and tactics, techniques, and procedures (TTP) for defending air bases and developed ID, publishing AF Tactics, Techniques, and Procedures (AFTTP) 3-10.1, *Integrated Base Defense*, in 2004 and AF Policy Directive (AFPD) 31-1, *Integrated Defense*, in 2007.¹ This concept called for the “application of active and passive defense measures, employed across the legally defined ground dimension of the operational environment, to mitigate potential risks and defeat adversary threats to Air Force operations.”² The ID operational approach is a new way of thinking that shifts security operations from a compliance-based model to a capabilities-based construct and emphasizes ground

intelligence-collection efforts in the operational environment. ID is designed to become a “fundamental battle competency for all Airmen, whether garrison or deployed.”³ ID applies a systems approach to defending air bases as well as a collaborative base defense operation with joint, combined, host nation, and local civil authorities.

The first operational test of ID came in 2008 when the Air Force was designated the base operating support-integrator (BOS-I) for Joint Base Balad (JBB)—formerly known as Logistics Support Area (LSA) Anaconda and Balad Air Base. This gave the Air Force responsibility for defending the base and its assigned joint forces, including the conduct of counter-indirect-fire (IDF) operations outside the base perimeter.⁴ Insurgents successfully interrupted and impeded operations with over 400 attacks in 2006 alone. The base defense strategy prior to 2008 was reactive in nature, chasing the IDF shooters after attacks or employing counter-battery fire against the incoming fire’s point of origin, which provided limited success in significantly reducing the number of attacks or deterring the insurgents.

As BOS-I the Air Force took a different approach and committed Airmen to an exterior base defense role in the largest combat deployment of security forces (SF) since the Vietnam War. The new strategy called for moving from reactive to proactive operations facilitated by committing intelligence analysts to ground defense intelligence and overlaying residual air assets in a systematic way to map the human terrain “outside the wire” (OTW) and outside the base defense perimeter. This increased the amount and quality of the intelligence and information available, allowing directed, proactive patrolling by security forces. This freed the local US Army battlespace owners’ (BSO) forces to conduct enhanced counterinsurgency (COIN) operations and key leader engagements within the Balad area. This synergy laid the groundwork for an integrated COIN plan that took advantage of the joint military, governmental, and non-governmental organizations’ efforts in the Salah ad Din province. This “all of government” approach to COIN integration significantly increased the security of Balad.⁵

The net result of the implementation of ID was an observed drop of 75 percent in the number of attacks overall and a continuous increase in the miss distance when attacks occurred.

Miss distances also doubled, producing a 75 percent reduction in effectiveness of attacks. The combination of the increasing miss distance and the decreasing number of attacks resulted in an enemy combined loss of effectiveness of over 90 percent. The defense of JBB produced similar results to the overall Iraq War decline in attacks. This evidence is consistent with deterring attacks, according to previously developed deterrence theory, and suggests that deterrence theory may be as applicable for ID operations as it was for Iraq COIN operations. The difficulty in analyzing situations resulting from the irregular nature of the attacks on JBB required more-advanced analyses techniques to reveal the true nature of the ID success.

The success at JBB validates the ID concept and demonstrates the application of lessons learned from previous conflicts. These lessons include the need to provide dedicated and integrated ground intelligence and unity of command to base defense forces and to account for the enhanced effects of joint operations. These lessons did not come without a major effort to overcome three significant barriers in implementation: foremost, ambiguity at the most senior levels of AF leadership as to who was responsible for protection beyond the base perimeter resulting from a “roles and missions” conflict in the joint community on the definition of “defensive operations” and a lack of understanding of ID concepts. The second barrier involved the AF not fully embracing the requirements nor adapting the training and equipping of security forces to meet the operational requirements of ID. Once leaders accepted the need to send forces off base to stop the threat, they realized USAF forces had neither the training nor the equipment to conduct such missions. The third major barrier required adapting Air Force logistical processes to allow acquisition of specialized ground combat equipment, which is either identical or compatible with that of its joint partners. This equipment is neither in the current inventory nor does the Air Force logistics system have parts available for a repair/sustainment capability once equipment is acquired.

Plans are underway to address and correct some of the barriers that have been identified in the lessons learned. Headquarters AF/Force Protection (HAF/A7S) developed a master action plan to continually strengthen and improve AF security

forces. One important goal is to optimize the training lifecycle and incorporate lessons learned into the current education courses. The lessons learned will modernize education courses to ensure that AF personnel arrive in-theater already trained to conduct ID. Another goal is to standardize the requirements process by incorporating integrated efforts with the Air Force Logistics (HAF/A4L) Combat Airmen initiative for procurement of ground-combat vehicles and equipment. The remaining objective is to educate Air Force leadership on ID and the threat mitigation requirement to extend operations into the base outer security zone as far as the effective range of adversary weapons.

The threat against USAF aircraft on the ground will not change. Despite many more attacks, the lessons learned at JBB cost less overall compared to Vietnam because there were far fewer casualties. Any effort to reduce the risks even further cannot be successful without leadership support and an understanding of the role the USAF must take in its own defense.

Notes

1. Air Force Policy Directive (AFPD) 31-1, *Integrated Defense*, 7 July 2007 (incorporating change 1, 22 April 2009), <http://www.af.mil/shared/media/epubs/AFPD31-1.pdf>.

2. *Ibid.*, 2.

3. *Ibid.*

4. SSgt Don Branum, "Balad Airmen Look Back: 2008 in Review," 332nd AEW Joint Base Balad, Iraq, 1 January 2009, <http://www.balad.afcent.af.mil/news/story.asp?id=123129950>.

5. Maj Gen Craig A. Franklin, interview by author, 22 December 2010, JBB.

About the Author

Col Joseph A. “Joe” Milner is the commander, 42nd Mission Support Group, Maxwell AFB, Alabama, where he is responsible for providing community support for 12,500 military and civilian employees associated with Air University, the 42nd Air Base Wing, the 908th Airlift Wing, and more than 40 tenant units at Maxwell AFB and Gunter Annex. His 2,250-person group provides contracting, security, fire protection, air traffic control and systems maintenance, personnel and information management, environmental restoration, logistics readiness and transportation management, grounds maintenance, and services for 45,000 military members, civilian employees, retirees, and family members.

Colonel Milner was born in 1964 in Atlanta, Georgia. He graduated from high school in Columbia, South Carolina, and enlisted in the US Air Force as a security specialist. He was selected in 1984 to attend the Air Force Academy Preparatory School and entered the Academy in 1985, earning a bachelor of science degree in 1989. He also earned a Masters of Criminal Justice degree from the University of South Carolina in 1995 and completed Squadron Officer School (1996), Air Command and Staff College (2003), and Air War College (2006, by correspondence), earning the Masters of Military Operational Art degree from ACSC. Immediately prior to his current assignment, Colonel Milner was a National Defense Fellow at the Institute for Defense Analyses in Washington, DC.

In previous assignments, Colonel Milner has served as a flight commander, operations officer, executive officer, action officer at the major command and Air Staff levels, squadron commander, and deputy group commander, primarily in security forces squadrons. His career includes a tour from September 2007 to November 2008 as chief of force protection for the Ministry of Interior Transition Team in Baghdad, Iraq. His decorations include the Airman’s Medal, Bronze Star, Meritorious Service Medal with five oak leaf clusters, Air Force Commendation Medal with two oak leaf clusters, Joint Meritorious Unit Award, AF Outstanding Unit Award with two oak leaf clusters, and AF Organizational Excellence Award. He is married to the former Kimberly Zaiger of Colorado Springs, Colorado; they have two daughters, Jessica and Sarah, and a son, Andrew.

Introduction and Methodology

The US Air Force is the world's preeminent air, space, and cyberspace force. Its mission is to fly, fight, and win, and it does this better than any other air force in the world. Since the inception of airpower, airmen have struggled with the dilemma of how to protect their capability to fly, fight, and win when their aircraft are removed from their natural environment of the air and returned to the ground, where they become vulnerable like any bird of prey. Air Force basic doctrine states, "Air and space power is most vulnerable on the ground. Thus, force protection is an integral part of air and space power employment."¹ While the USAF recognizes the threat, base defense—defending one's air assets on the ground—is one of the least understood operational aspects of airpower. The current Air Force strategy for defending air bases is integrated defense (ID)—formerly known as air base defense or air base ground defense.

This study looks at the period between September 2008 and June 2010 when the Air Force took on the base operating support integration (BOS-I) mission at Joint Base Balad (JBB). Operation Desert Safeside saw a scope of operations not seen by a single USAF security forces unit since the Vietnam War. During this period over 900 Air Force security forces personnel were deployed in one unit, charged with the defense of JBB. These men and women focused on ground combat operations "outside the wire" (OTW), while simultaneously synchronizing air and ground forces into the Army's counterinsurgency and stability campaign. This study examines the first full implementation of ID in a combat environment to evaluate the effectiveness of the strategy in actual operations, learn from that experience, and provide considerations for future operations.

The methodology employed for this study began with an evaluation of all the historical data on previous air base defense operations to frame the context from which the current operations originated. The review then focused more narrowly on actual operations at JBB and evaluation of the attack data collected from 2004 through 2010, concluding in an analysis of the after action reviews and lessons learned to determine any future applications.

Specifics of the methodology include a review of historical documentation of attacks on air bases. The primary historical references were Roger Fox's *Air Base Defense in the Republic of Vietnam*, Alan Vick's *Snakes in the Eagle's Nest*, and Alan Vick and David Shlapak's *Check Six Begins on the Ground*. A review of current joint and Air Force doctrine followed the historical review to determine the institutional concept for ID and its application. Further research into current databases for the US Army, Air Force, and Marine Corps pulled all applicable air base defensive lessons learned into a consolidated forum for evaluation. These lessons provided names of the primary individuals involved with application of ID at JBB and similar operations within the US Central Command (CENTCOM) area of responsibility (AOR). This information made it possible to conduct interviews with key players from JBB, ranging from staff members at CENTCOM to various Army and AF commanders on the ground during that time period.

This compilation of data provided a framework to understand the operation as it unfolded at JBB. This understanding was matched against the raw attack data meticulously maintained by the joint intelligence support element (JISE) from 2004 through 2010. The level of detail provided in this data enabled an advanced statistical evaluation of the effectiveness of ID in a combat environment. Results of the statistical analysis, interviews, and consolidated lessons learned form the basis for the key lessons learned and future implications.

Historical Context

To understand ID, one must understand the historical context which led the USAF to develop this strategy and doctrine. Since the beginning of flight and the evolution of airpower as a significant and vital part of US armed forces, airpower has caused important changes to US strategies and tactics. World War I was primarily fought as a set-piece battle within the fixed lines of trench warfare.² Airpower was first used for reconnaissance, then light bombing or strafing, and finally, through evolving air-to-air capability, to deny aerial operations to the enemy. Allied and enemy units operated from bases behind massive complexes of trench lines that rarely shifted more than

a few hundred meters. As a result, air bases enjoyed almost absolute security from attack by conventional ground forces.³

In World War II, the Nazis unleashed a new mode of mobile warfare called blitzkrieg. This “lightning war” relied on sudden attacks by land and air to overwhelm opposing forces. As the German army swept across Europe, it often used paratroops and airborne forces to seize or destroy Allied air bases and other vital rear-area installations. During the spring of 1940, the seizure of air bases in this manner sped the Nazi conquest of France, Norway, Denmark, Belgium, and the Netherlands.⁴

By mid 1941, one could theorize with some assurance on the role of air base security in the Second World War. Clearly, air-power would be crucial to the war’s outcome. Nevertheless, air-power was firmly bound to bases, which were vulnerable, lucrative priority targets. The enemy could attack an air base to achieve one (sometimes both) of two very different objectives: It might destroy aircraft, facilities, and materiel to deny them to the defenders, or seize the base essentially intact and convert it for its own use. Lastly, air bases were nothing more than large fields. They were not defensible for long if the surrounding land area and/or airspace fell to the enemy.⁵

The German seizure of Maleme and the occupation of Crete in May 1941 led Prime Minister Winston Churchill to review British air base defense policy. In a scathing memorandum of 29 June 1941 to the secretary of state for air and the chief of the air staff, the prime minister cataloged the shortcomings of the Royal Air Force (RAF) and ordered them corrected. Churchill flatly declared he would no longer tolerate a half million RAF personnel without a combat role. All airmen were to be armed and trained, ready “to fight and die in defence of their airfields; . . . every airfield should be a stronghold of fighting air-ground men, and not the abode of uniformed civilians in the prime of life protected by detachments of soldiers.”⁶

In the Pacific, the island-hopping campaign focused on and utilized airfield seizures, combined with their geographic positions, to drive battles. If an island did not have a usable airfield, Allied forces deemed it unimportant and starved out its defenders. Everything that did not support the goal of an invasion of Japan was bypassed. Bypassing operations represented the majority of the actions in World War II, where large maneuver

forces of regiment, division, or even corps strength conducted offensive and defensive operations involving seizing and maintaining airfields.

One major exception to this generality was the British special air service in Africa. Their small band conducted raids against the *Afrika Korps* and Italian airfields, resulting in 367 Axis aircraft plus tons of munitions, fuel, spare engines, and maintenance facilities destroyed in a two-year period.⁷ Of 44 specific raids, only five involved greater than a seven-person team, with 34 of the raids conducted by five-person teams. The smaller team footprint was ideal for avoiding detection. The key to their success was exploiting organizational seams, where Luftwaffe base defense units conducted interior defense and general rear-area security belonged to the *Afrika Korps*.⁸ While very successful, the conduct of the war overall did not make this methodology the norm but provided a glimpse of future conflicts, beginning in Vietnam and continuing through today.

The Korean War did not see an immediate use of these small-unit tactics against airfields, though the capability certainly existed. Air Force security police began an aggressive buildup of personnel, expanding from 10,000 in July 1950 to 39,000 in December 1951. Due to a lack of external threats, AF security forces primarily focused on interior security, pilferage, trespassing, and theft within the base perimeter. While 32,000 to 35,000 North Korean guerrillas operated in United Nations territory during the war, they ignored the air bases as a target. The Far East Air Forces (FEAF) assessed and documented its experience in a summary report at the end of the war in July 1953. The FEAF report cited no air base attacks by guerrillas or other irregular forces and no aircraft lost or damaged by such actions. When enemy forces broke through and air bases were overrun or threatened, it was clearly the Army's responsibility to respond rather than local base security forces.⁹

The lack of a threat was fortunate, since the Air Force went into the Korean War without an air base defense policy or doctrine. A lack of doctrine and minimal policies continued until the Vietnam War and provided an exploitable condition for the Vietcong and North Vietnamese Army (VC/NVA). To understand how this happened, this study examined the development of interservice agreements and joint doctrine.

Interservice Agreements

Two years after World War II ended, the National Security Act of 1947 established the US Air Force as an independent department equal to the Army and the Navy. A 1947 Army–Air Force agreement stated that “each department will be responsible for the security of its own installations.”¹⁰ Security meant those “measures taken by a command to protect itself,” including “measures against air, mechanized, and chemical attacks.”¹¹

The first secretary of defense, James Forrestal, held a conference in March 1948 with the Joint Chiefs of Staff in Key West to define service responsibilities and missions. An important function common to all the services was base defense—the responsibility “to develop, garrison, supply, equip, and maintain bases.”¹² As defined by the joint dictionary, an Air Force base is a facility “for which the Air Force has operating responsibility, together with interior lines of communication and minimum surrounding area required for local security (Normally not greater than an area of 20 square miles).”¹³

The Air Force found this to be a gray area, since the agreement made no specific mention of an Air Force ground combat mission for base defense. In contrast, the Army’s key responsibility was “to seize, occupy, and defend land areas.”¹⁴ Similarly, the Navy and Marine Corps were “to seize and defend advanced naval bases and to conduct such land operations as may be essential to the prosecution of a naval campaign.”¹⁵ Nowhere did the agreement assign the Air Force the mission of defending its own air bases. It also neglected to define how base defense (common to all services) would tie in with area defense (chiefly an Army duty).¹⁶ This lack of clarity in the joint doctrine resulted in the Air Force entering the Korean War with no clear policy or tactical doctrine for air base ground defense. The Air Force published Air Force Regulation (AFR) 355-4, *Local Ground Defense of Air Force Installations*, on 3 March 1953, which defined local ground defense as “all measures taken by the local Air Force installation commander to deny hostile forces access to the area encompassing all buildings, equipment, facilities, landing fields, dispersal areas, and adjacent terrain” from which the (air base) installation could be neutralized.¹⁷

Doctrine Development

The most lucid statement of prevailing Air Force base defense rationale appeared in the October 1952 edition of Strategic Air Command (SAC) Manual 205-2. It rejected the notion that the USAF ground defense mission conflicted with Army functions, because self-defense is an inherent responsibility of all commanders. Moreover, normal Army campaign strategy and tactics for defending land areas inevitably left small areas or points open to attack by small enemy forces. Because the Army is an offensive force, its doctrine contemplates taking the defensive in a given area only to reach an offensive decision elsewhere. While the Army's limited and temporary defensive role might be inconsistent with, or even coincide accidentally with a primary USAF self-defensive mission at specific air base locations, the Army was not expected to divert its primary mission to confine its operations to the defense of Air Force elements.¹⁸

Conversely, SAC officials recognized that success for the Air Force mission might require point defense of elements that the Army could not afford to protect. Further, as joint defense plans would most likely rely on distant troops, air installations would be vulnerable to surprise attacks pending their arrival. Moreover, these defensive forces might not come at all if an overriding Army offensive mission developed at a decisive moment. Hence, the SAC rationale held that ground defense must inescapably remain an organic USAF function.¹⁹

This view, unfortunately, died in the intervening years between the Korean and Vietnam wars as a result of reduced defense resources, a new national security strategy, and revised intelligence estimates. These factors, coupled with an inconsistency between the actual combat threat to air bases in Korea and that envisioned in AFR 355-4, led to a contradiction that deeply eroded the regulation's credibility.

During the Eisenhower administration, a new national security strategy led to a revision of air base defense concepts. The containment of communism would be achieved by "brinkmanship" diplomacy, backed by a public promise that the United States would resort to massive nuclear retaliation if its vital interests were imperiled. This policy did not envision further US involvement in limited wars like the one in Korea. It assumed

that a future conflict would be decided by an immediate exchange of nuclear strikes during a short period followed by exploitation by the victor to end the war. Reflecting this new strategy, intelligence estimates calculated that any action would probably include attacks by clandestine teams of highly trained agents against US nuclear strike installations. Overt, large-scale ground assaults were deemed unlikely.²⁰

Based upon this assertion, the Air Staff conducted a study in 1957 that resulted in the replacement of AFR 355-4 with AFR 205-5, *The Internal Installation Security Program*. This program centered on protecting critical weapons systems, equipment, materiel, and facilities from sabotage. It applied solely to bases with combat or combat-support missions and centered on personnel circulation control. A 24-hour backup capability was supplied by small, mobile, sabotage-alert teams of air police. The emergency reserve was comprised of off-duty air police or other qualified base personnel. Essentially, the entire system was manned solely by air police; a fundamental feature, considering the failures to implement the original AFR 355-4 concept, which pulled personnel from all specialties not directly conducting flying operations. This shift in USAF base defense policy revoked the concept of limited ground combat capability for defense against an overt external threat. In its stead, the Air Force adopted a concept that called for an expanded interior guard system to counter a covert threat from within. To cope with a threat that exceeded this security capability, the study concluded that “the base must be garrisoned by friendly ground forces or evacuation . . . must be accomplished.”²¹

It was with this mind-set that the United States entered the Vietnam War. At the beginning of the war, when the United States was in the combat advisory phase, air base security did not actively consider the impact of insurgency warfare in base defense. It overlooked the need to prepare indigenous forces to defend its own air bases and to develop an organic USAF counter-insurgency ground defense capability. Instead, the Army of the Republic of Vietnam (ARVN) was charged with the perimeter and exterior defense of USAF core operating locations at DaNang, Bien Hoa, and Tan Son Nhut Air Bases from 1961 to 1964. Throughout this early period, the VC/NVA chose to ignore the air bases,

thus base defense capabilities were untested, weaknesses were hidden, and the importance of air base defense obscured.²²

This practice continued throughout the Vietnam War, with USAF security responsibility ending at the perimeter,²³ and within that perimeter, restricted to USAF resources. The only notable variation between air bases was the determination of the service or force responsible for the area defense mission from the perimeter out into the surrounding countryside from which indirect fire (IDF) could affect a base. The seams allowed by this arrangement resulted in the VC/NVA turning their attention to air bases on 31 October 1964 with the launch of a 70-round stand-off attack on Bien Hoa. It was the first of over 475 attacks on the 10 major air bases in Vietnam over the next 10 years. The attacks destroyed 99 US and South Vietnamese aircraft and damaged another 1,170.²⁴

Following the Vietnam War, despite lessons learned that underscored the seams created and the conflicts in the different mission sets (offensive versus defensive), the Army and Air Force continued to use the AFR 205-5 model and formally signed Joint Service Agreement (JSA) 8 in 1985. JSA 8 made the Army “responsible for providing forces for air base ground defense operations outside the boundaries of designated USAF bases and installations.”²⁵ But JSA 8 was never implemented nor fully developed. While the prescribed joint working group met at least four times, they agreed that “the principles to be set forth in pending JCS Pub 3-10, *Doctrine for Rear Area Operations*, would provide the doctrinal guidance for all subsequent publications.”²⁶ Pub 3-10, published in 1992, made the joint forces commander (JFC) responsible for installation defense regardless of service affiliation. Forces are dedicated to base defense according to the JFC’s priorities and are controlled by the installation commander. Operation Desert Storm quickly showed this agreement was not workable for the same reasons it did not work in Vietnam, namely that an offensive Army does not have the resources nor the inclination to dedicate resources to a defensive fight in the rear area. Even though joint doctrine and the JSA agreement differed, the JSA was not rescinded until 1995. Unfortunately, neither Army nor Air Force staff members could find the actual abrogation package, and many key leaders in both services continued to expect

Army support to defend air bases at the beginning of Operation Iraqi Freedom. A second formal abrogation package was agreed to and completed by both services in 2005. Once the abrogation of JSA 8 was complete, a better way emerged for the alignment of joint doctrine and implementation of the current doctrine of integrated base defense.

In 2006, Brig Gen Robert Holmes, former director of AF security forces and force protection wrote, “Land-component maneuver forces will be stretched thin for the foreseeable future, so the Air Force must invest in its capabilities to securely reject combat air and now ground power.”²⁷ The Air Force announced “integrated defense” as its new strategy for defending air bases in 2007. ID calls for the “application of active and passive defense measures, employed across the legally defined ground dimension of the operational environment, to mitigate potential risks and defeat adversary threats to Air Force operations.”²⁸ It calls for a new way of thinking that shifts from a compliance-based model of security to a capabilities-based construct. ID utilizes a collaborative base defense operation model that integrates joint and combined partners, ground intelligence collection efforts, and a systems approach to defending air bases.

Integrated Defense—Organizing for Success

The successful implementation of ID was essential to the protection of Joint Base Balad as Operation Iraqi Freedom progressed. In 2006, sectarian violence escalated to a point where commanders on the ground convinced civilian leaders in Washington of the need for additional forces. At the same time, escalating attacks against coalition forces across the nation forced the services to evaluate both the combat and combat-support functions each provided, with an eye toward how expanded or surge operations might impact each service’s ability to operate successfully in Iraq. Army and AF leadership began to discuss which service would be responsible for base operating support–integration (BOS-I) for Balad AB/LSA Anaconda. The actual 2007–08 “surge” followed shortly, with the addition of 30,000 American forces into Iraq and a subsequent increase in patrols and kinetic operations. This period allowed the AF to plan for and assume BOS-I for Balad

AB/LSA Anaconda, which was renamed Joint Base Balad, or JBB, in November 2008.

The Situation

JBB is strategically centered in Iraq to provide interdiction and around-the-clock close air support operations. The F-16s, A-10s, and Army Apaches stationed there could move anywhere in the country in minutes.



Figure 1. Map of Iraq displaying Joint Base Balad (represented by the red dot)

JBB is located in the Salah ad Din Province, southeast of the provincial capital of Samarra and 65 kilometers (km), or 40 miles, north of Baghdad. It is in the fertile Tigris River Basin, with numerous farms and groves in the local area. Approximately 120,000 people live in this area, making concealment of the insurgent population easier, as well as complicating counterbattery fires.

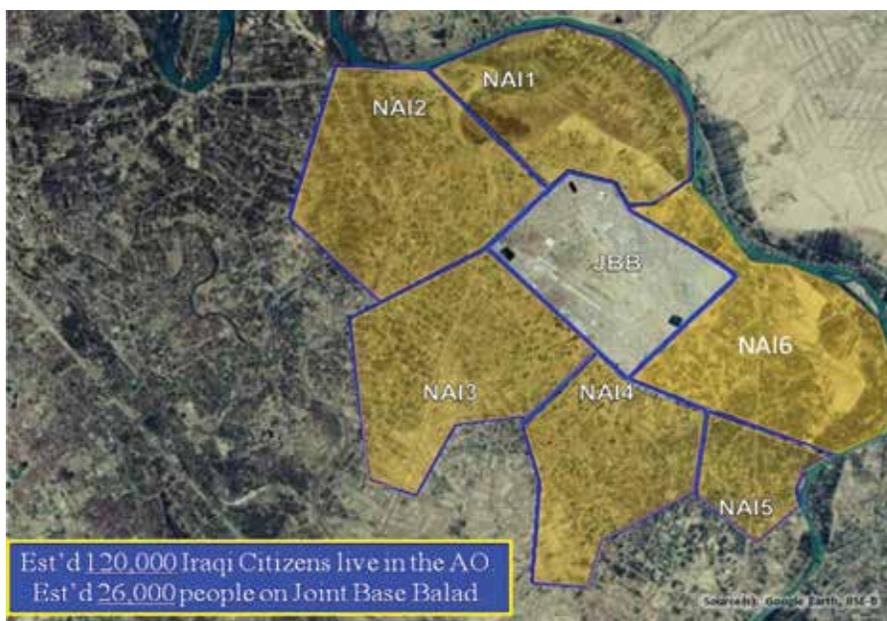


Figure 2. JBB with named areas of interest depicted around the installation

When the 332nd Air Expeditionary Wing became the BOS-I in November 2008, Air Force security forces (SF) were charged with the defense of Iraq's only named joint base out to 8 km from the base boundary. To achieve ID, JBB organized its base defense assets under the 332nd Expeditionary Security Forces Group. The 332nd ESFG was activated on 24 July 2008 and marked the first time the Air Force deployed more than 900 Airmen within a single unit to defend an air base in combat since the Vietnam conflict.²⁹

The Organization

The 332nd ESFG was comprised of three distinct elements—two expeditionary security force squadrons, the 332nd ESFS

and the 532nd ESFS, and a robust staff element. The 332nd ESFS was tasked with perimeter and interior security for JBB. The 532nd ESFS was tasked with exterior security, to include entry control points to the base, exterior patrols, and tactical security elements escorting local Air Force Office of Special Investigations (AFOSI) agents in their OTW missions. Both units utilized a combined force of AF security forces and private security to accomplish their mission. To support these two squadrons, the 332nd ESFG staff conducted standard group functions along with incorporating several enhanced operations such as 24/7 operations for both the joint defense operations center (JDOC), counter-rocket artillery mortars (C-RAM), and JISE-Balad. Figure 3 is an organizational breakout of the unit as it looked in July 2010.³⁰

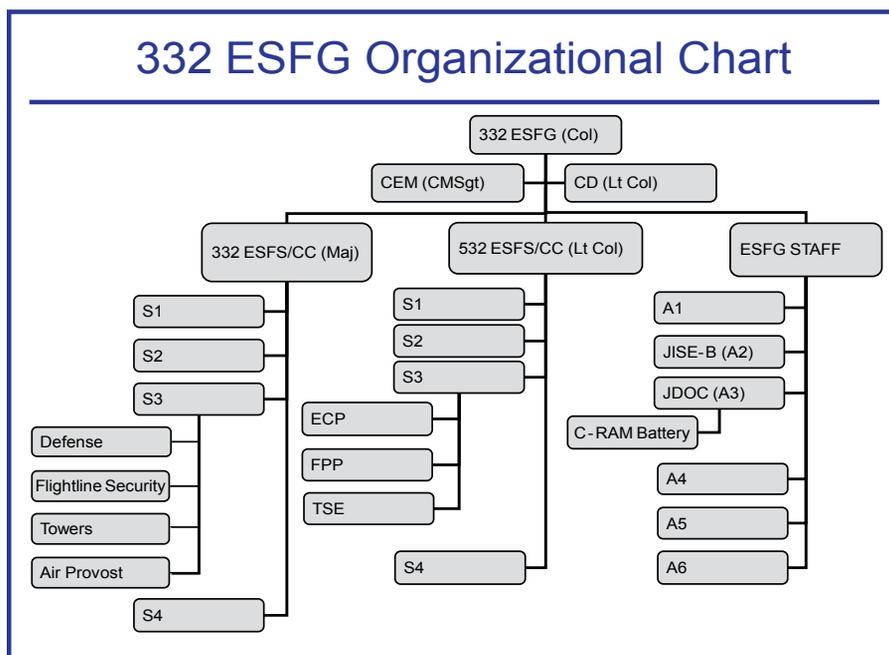


Figure 3. ESFG organizational chart

The defense force commander (DFC) synchronized all ID operations through the JDOC, collocated with the local Army battlespace owner's (BSO) tactical operations center. The JDOC,

by virtue of both its physical composition and the vast suite of technologies, was the DFC's integrated command and control hub as well as a true joint collaborative environment. Just under \$500 million in technologies provided a 360-degree security sensor and video system capable of viewing the surrounding 12 miles beyond the base boundary. The JDOC, operated by Airmen and Soldiers, was the central nervous system of the defense scheme. The JDOC directed and integrated all security systems in the overall defense of Joint Base Balad; this included all physical security subsystems (detection, delay, and response) both inside and outside the wire. The JDOC also served as the tactical integrator of both intelligence and the BSO's effects guidance to drive the base defense effort. The JDOC helped develop joint command relationships, fully integrating the joint and combined forces into a comprehensive defensive operation for JBB.³¹

332nd Expeditionary Security Forces Squadron Operations

The mission of the 332nd ESFS was to protect personnel and resources in an expeditionary environment with an emphasis on defending the base from a complex attack at the wire or within the installation. To accomplish this mission, the 332nd integrated nearly 400 private security company guards into its defense posture. Private security guards manned perimeter towers and internal posts located outside highly populated areas such as morale, welfare, and recreation (MWR) facilities, base exchanges, the hospital, and other areas where 50 or more personnel gathered on a regular basis. The presence of the contract guards relieved US forces to accomplish other essential wartime duties.³²

Normally, the 332nd ESFS manned only half the perimeter towers on a random rotation; however, tower manning increased to 100 percent during reduced visibility or in response to a significant change in threat. Initially, the wing relied on all tenant units to provide "troop to task" manpower for the increased tower posts, a process normally requiring up to four-plus hours to complete. To better protect the base, the 332nd ESFS added

the 100 percent requirement to the private security company contract, and the process shortened to less than 60 minutes.³³

In addition to integrating the private security contractor force, the unit based its entire scheme of maneuver around the principles of effects-based, rather than compliance-based, security. The 332nd ESFS defensive scheme allowed the threat to dictate security posture and procedures. The unit recognized that the success of an ID plan relies significantly on the forces assigned to an installation, especially in a deployed environment. It is paramount for the owner/user of a resource to secure it and to be able to identify, detect, and deter hostilities prior to the enemy reaching his objective. This concept required a targeted owner/user campaign so that all US forces understood the concept, ultimately allowing SF to deploy their forces in a way that would engage the enemy further away from the resources.³⁴

Air provost services, such as law enforcement patrols, building checks, and traffic enforcement, are a necessity for the safety of all war fighters at a deployed location. The air provost was more than law enforcement; it also included police services during special events. Large United Service Organizations (USO), Armed Forces Entertainment, and MWR functions are common occurrences to raise the morale at any deployed location; with 26 events in 2009, JBB was no exception. The 332nd ESFS developed security plans with all SF assets, including military working dogs (MWD) and the 532nd ESFS. While MWDs routinely checked all cargo for the event, the 532nd ESFS generated additional patrol coverage outside the installation perimeter nearest the event venue. The 332nd ESFS also provided a personal security detail to escort distinguished visitors and established close-in event security.³⁵

A special mission set within the 332nd ESFS was the fly-away security (FAS) teams. FAS teams provided security for C-130s transiting locations within Iraq as well as Kuwait, Qatar, Jordan, Yemen, and the Horn of Africa. Thirteen personnel (a Raven-certified program manager and 12 FAS team members) were assigned to this unique mission. Each member was trained for both ground security and flight deck denial operations. FAS teams also conducted force protection airfield assessments of locations throughout the AOR and provided their airfield security recommendations to the director of mobility forces.³⁶

The final mission set within the 332nd ESFS was the Balad Expeditionary Antiterrorism Strike Team (BEAST). The BEAST provided a special capability to fight inside-the-wire (ITW) threats such as foreign intelligence service, terrorist, and criminal threats. The BEAST increased the unit's ability to mitigate ITW threats exponentially as a dedicated unit unhampered by other air provost duties, such as traffic control or minor incident responses. During its first three months of operation, the BEAST screened over 11,000 third-country nationals and local nationals (TCN/LN) and conducted more than 800 random antiterrorism measures (RAM). In addition to randomly screening workers at the workplace, the BEAST conducted health and welfare inspections (HWI) in workers' "man-camps." Before the BEAST, the 332nd ESFS conducted one or two HWIs a month. With the BEAST, the unit conducted up to six HWIs each month.³⁷

Technology was critical to the success of 332nd ESFS operations. With the largest enhanced tactical automated security system (eTASS) in the Department of Defense, the unit could monitor and immediately assess events at both the base perimeter and the restricted area fence lines. The eTASS operators monitored the 21-km-long perimeter and the 16-km restricted boundary with nearly 550 sensors supported by nine wide-area surveillance thermal imagers, 12 long-range thermal imagers, two super-long-range thermal imagers, 13 handheld monitors, eight closed-circuit TVs, and eight man-portable surveillance and target acquisition radars. All of these systems provided immediate visual assessment throughout the interior and exterior of the installation.³⁸

532nd Expeditionary Security Forces Squadron Operations

The 532nd Expeditionary Security Forces Squadron was charged with three primary missions: screen everyone and everything entering the base through the entry control points (ECP); conduct combat patrols off the installation to disrupt and deter IDF attacks and the placement of improvised explosive devices (IED) along supply routes; and provide tactical security elements (TSE) in support of AFOSI operations. The 532 ESFS

directly contributed to the BSO's counterintelligence (COIN) campaign plan through its interaction with the local population, intelligence collection against high-value individuals, and deterrence effect in the base security zone (BSZ).³⁹

Entry Control Point Operations

Overseeing the entire entry control point operations was an officer in charge (OIC), two assistant OICs, a noncommissioned officer in charge (NCOIC) of ECP operations, and an NCOIC at each ECP. Although each ECP had a different mission set, they had very similar structures for posts and responsibilities. For example, each ECP maintained an internal response force (IRF) to respond to any suspicious activity or possible threat, conduct RAMs, and provide oversight for pedestrian and vehicle searches. Additionally, each ECP had manned towers to monitor assigned fields of fire, provide over watch for IRF patrols, identify possible threats, and provide information to the ECP command post.⁴⁰

Iraqi Vehicle and Pedestrian Screener (IVPS). Bringing the local population into the defense of the base as the initial point of contact for Iraqis coming to JBB was a phenomenal success. It brought business opportunities to the local area and included the local populace in the overall effort to secure and defend their country. The IVPS contractor was required to inspect all non-coalition pedestrian and vehicle traffic at designated checkpoints *outside* the ECP. The objective was to prevent vehicle-borne improvised explosive device/suicide-vest improvised explosive device (VBIED/SVIED) attacks and put an "Iraqi face" on the security team to reduce the need for an escalation of force.⁴¹

The contract required that all newly hired guards be Iraqi citizens of at least 21 years of age who normally resided within 15 km of JBB and represented no less than 80 percent of the labor force from the area in and around JBB. The workforce was representative of the local community with respect to religious and tribal percentages as closely as possible to the actual social composition around the installation. Although IVPS guards were not allowed access to the base, as a condition of employment each guard was subjected to the same screening

process and entered into the biometrics automated toolset (BATS) just as they would had they installation access.⁴²

Since implementation in 2009, the installation's entry control point outermost security has been airtight, with zero bombs on base. In harm's way daily, IVPS guards were the initial detectors of any contraband or explosives someone might attempt to smuggle onto the base. Their dedication to the base and the security of the land immediately outside of JBB was instrumental in the overall success of the security on JBB.⁴³

Private Security Contract (PSC). The private security contract at JBB provided critical manpower to the 332nd ESFG—over half of the entry control point section—serving as vehicle searchers and in other static posts such as the badging offices at each of the three ECPs.⁴⁴ PSC guards worked tower observation posts, traffic control points, and armed escorts. They were also trained and operated the mobile vehicle and cargo inspection system (MVACIS), rail vehicle and cargo inspection system (RVACIS), and WT-101 and conducted physical searches of personnel and vehicles prior to their entry to JBB. They were armed and subject to the same use of force and rules of engagement (ROE) as US forces.⁴⁵

Entry Control Point Technology. Technology significantly enhanced ECP operations, but also required a dedicated force to maintain. Through the use of contracts funded by US Air Forces Central (AFCENT), field service representatives kept the equipment operational. Listed below are several systems installed at each of the ECPs to provide a thorough—and redundant—inspection and screening capability.⁴⁶

- Blue force tracker (BFT) rapid aerostat initial deployment (RAID): employed a variety of sensor suites—electro-optical/infrared (EO/IR) sensors, radar, and flash and acoustic detectors—to provide elevated persistent surveillance (EPS)
- MVACIS/RVACIS
- Z-Backscatter X-ray van (ZBV)

- Ruggedized detection imaging module (RDIM): employed the same patented Z-Backscatter technology as the ZBV in a stationary capacity
- WT-101 or Rapiscan Secure 1000®: enabled operators to easily identify concealed threat and contraband items on personnel, detecting both organic (e.g., solid and liquid explosives, narcotics, ceramic weapons) and inorganic (e.g., metal) materials.
- BATS: automated personnel enrollment and tracking system for all locally issued badge holders.
- Ion scan: physical trace detection system to detect explosive residue on skin, clothing, parcels, bags, cargo, vehicles, and other surfaces.

Force Protection Patrols

For many years, SF have organized, equipped, trained, and executed operations in an environment outside the base. Since the start of the war on terror, much of what we knew about air base defense came from preexisting manuals, journals, and regulations, but much has changed, often overnight. The greatest change is the need for expansion and coordination with joint, coalition, and combined forces. With little background or training, the average SF unit will now be asked to train and fight alongside or with joint partners like the US Army. Additionally the USAF must do the same with host nation forces like those of the Iraqi army and Iraqi police. Fostering relationships with sister services and coalition partners is a prerequisite to conducting operations OTW. With respect to the Army, they are normally the battlespace owner, and they can/will decide when/how SF will fit into the strategic and tactical picture. The USAF must learn how the Army and other services conduct operations.⁴⁷

Outside-the-Wire Patrol Mission Planning Techniques

Concepts of operation (CONOPS) are developed to outline BSZ missions mirroring an operation order but in a shorter digital format. The Army has adopted the use of PowerPoint for CONOPS,

and the BSO requires it prior to any movement in the BSZ. CONOPS are developed through:

First, determine mission: counter-indirect fire (C-IDF), terrain denial, counter-IED (C-IED), intelligence-driven operations, patrol densities (pattern or trend setting), priorities intelligence requirements (PIR), BSO direction, or other outside agency requirements, such as engineers, other coalition forces (CF), Iraqi army or Iraqi police (IA/IP).

Second, compare to synchronization matrix (synch matrix), normally done 14 days in advance of when actual missions will occur, to marry or deconflict timelines in conjunction with various support assets (RPA, other aerial platforms) and the BSO.

Third, coordinate synch matrix with BSO, expeditionary operations, security forces, civil engineers groups, intelligence nodes (Battalion S-2, company HCTs, CIST, OSI), and other CF in the BSZ or host nation partners (IA/IP).

Fourth, after approval of the force protection patrol officer in charge (FPP/OIC), the planning/building stages begin for the CONOPS. The FPP/OIC, patrol master, and mission planning cell (MPC) begin constructing the mission CONOPS four days out. Squad leaders receive warning orders for the upcoming mission. The CONOPS are forwarded to the BSO for situational awareness and final deconfliction, and then finally sent to the squad leaders for mission execution. The length of time to produce CONOPS is determined locally by BSO directives, operational tempo, mission load, mission sensitivity, and the number of teams available.⁴⁸

Sand tables and operation orders have long been the proven and effective way to plan and execute in a wide range of conflicts and operations. Today, in OTW operations at JBB, time is the essence of success in many fights. Often technology can hinder or help us. The mission planning process for OTW missions has evolved significantly from its inception in 2008; the ID CONOPS is a new way of doing business.⁴⁹

The mission is broken down into PowerPoint slide formats, using various types of imagery. Traditional Army symbols are staked down to an electronic visual of the scheme of maneuver, summarizing the five-paragraph format into a slideshow. The benefit is that once it is completed, it can be tailored for any day-to-day clearing operation or specific named operation that garners multiple coordinations from other agencies.⁵⁰

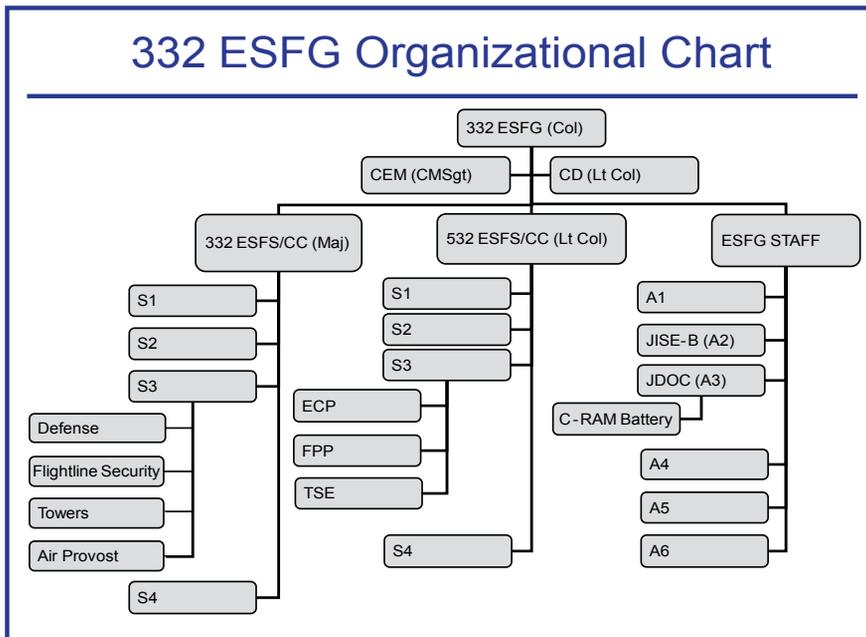


Figure 4. 332nd ESFG OTW patrol CONOPS development

ID CONOPS is developed from many sources. First, it must be placed on the BSO synch matrix to schedule operations, taking into account the BSO's battle plans, enemy threat windows, aerial assets available, joint intelligence requirements, patrol densities, and current tactics, techniques, and procedures (TTP) of the adversary. The ID CONOPS has a section within the organization called the mission planning cell. The MPC is comprised of the traditional patrol master with a couple of trained and seasoned Airmen to assist in the scheduling, plan development, and CONOPS construction for OTW squads. The MPC executes the previously mentioned CONOPS process through specific and direct guidance of the force protection officer in charge. The FPP/OIC dictates the flow and direction of operations, meets with intelligence organizations, and coordinates with joint, coalition, and host nation forces to provide the mission purpose and guidance. Essentially, the FPP/OIC states the mission parameters and intent. The MPC executes

based on this information to provide solid, actionable CONOPS to meet the higher commands' directives.⁵¹

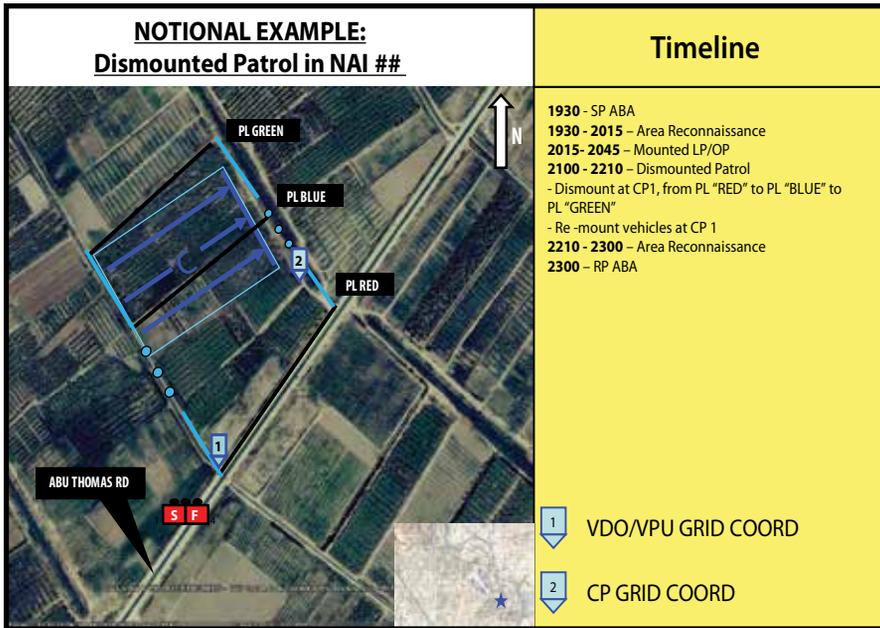


Figure 5. 332nd ESFG notional example of a dismounted patrol plan in PowerPoint

Tactical Security Element Operations

A TSE is a security forces team, approximately squad sized, tasked to perform mobile and static tactical security operations in support of AFOSI's counterterrorist operations (CTO) missions. These missions primarily consist of routine combat mounted patrols between the main operating base (MOB) and off-base (objective) locations.⁵²

Two squads of TSEs were assigned to the 532nd ESFS under the tactical control (TACON) of the commander, Expeditionary Detachment 2411, AFOSI. The 532nd ESFS was responsible for the administrative and day-to-day support of the TSEs, while the AFOSI detachment commander directed their missions. It was critical for the commander to provide a mission brief and establish expectations for the TSEs. The relationship

and communications chain needs to be strong between the detachment commander and SF commander to achieve maximum results. All teams had the capability to shoot, move, and communicate at a high level of proficiency in daytime, low-light, or black-out conditions in any type of terrain/weather condition. When TSEs move in the battlespace independent of but coordinated with the BSO, they abide by theater and local guidance, including the numbers and types of vehicles required for OTW operations.⁵³

The TSE patrol leader (PL) controlled the security mission, to include directing mounted operations to and from the objective as well as combat operations if the patrol came under attack. The PL had the authority to terminate OTW missions for tactical or other unforeseen security reasons in the event of a valid specific threat. The AFOSI lead agent on each mission directed AFOSI agents and linguist actions during the planned AFOSI-specific activity, while the TSE PL directed all security movements. The final decision authority on all tactical security operations rested with the TSE PL.⁵⁴

Unique Relationships

Several unique relationships provided a doctrinally sound, joint defense structure to the 332nd ESFG, beginning with the tactical control of the C-RAM joint intercept battery (JIB) under the DFC. An Army air defense artillery battery commander was responsible to the DFC for the eight guns and seven radar systems employed to provide sense, warn, and intercept capability as well as operational control of the 66 Soldiers and 64 Sailors assigned to the battery. Several improvement initiatives resulted in a system performance record unmatched in Iraq: a 90-percent sense and warn rate that gave personnel a chance to take cover before IDF impacts and a 164-percent increase in intercepts in 2009. C-RAM was a unique defense against enemy IDF attacks and as a localized warning to populated areas of the base. Placing C-RAM under tactical command of the DFC ensured the best possible integration of its capabilities into the overall physical security and force-protection architecture of JBB and the counter-IDF plan.⁵⁵

Another unique joint relationship was the force protection patrol's relationship with the BSO. Once the patrols exited the base perimeter, or "broke wire," they were TACON to the BSO. To produce effects in the battlespace, the defense force commander and his Airmen partnered with the local Army BSO, who had operational responsibility for the terrain surrounding JBB and for developing and executing a campaign plan within this geographic area. Per the BSO construct, personnel transiting through a BSO's area were required to comply with their commander's intent for the battlespace, as well as adhere to Army tactical command and control protocols, mission-planning requirements, and scheme of maneuver. Compliance with their guidance to generate the desired effects demanded a synchronized and coordinated effort between Air Force and Army ground forces defending the air base.⁵⁶

To the BSO, JBB's base defense was one of an extensive list of operational mission tasks within the operational environment. The BSO had responsibility for a large geographic area far beyond the IDF threat ring affecting the air base—specifically, more than 3,000 square kilometers, far more than the 243 square kilometers encompassing the JBB standoff-attack threat area. It is easy to see how a BSO's capabilities could become stretched and how external force protection of an air base could be relegated to a lower priority, especially if other high-priority targets were also located within their AO.⁵⁷

Unlike other SF groups, the 332nd ESFG staff played a significant role in defense force operations through the director of operations (A3)—the force integrator. The A3 bridged the natural fault lines expected in both joint and combined operations as the (1) primary BSO liaison to synchronize Air Force ground operations, (2) integrator of air assets in support of base defense and counter-IDF missions, and (3) creator of intelligence-driven integrated defense operations through the JISE.⁵⁸

Joint Intelligence Support Element

Unlike operations in Vietnam, JBB employed dedicated intelligence assets for base defense under the A2/JISE. In Vietnam, Air Force intelligence assets focused on air operations and provided little ground intelligence support to base defenders—a

situation that resulted in losses that would be unacceptable in the current war. The JISE, a dedicated, 22-person, ground-focused, force-protection intelligence organization was established at JBB to remedy this historical shortfall. The JISE was comprised of four components: an intelligence collection cell, an atmospheric collection cell, an all-source cell, and finally, the direct liaison cell with the 532nd ESFS off-base patrols.⁵⁹

The intelligence collection cell included specialists in the human intelligence, signals intelligence, and geospatial intelligence disciplines. These specialists not only answered analysts' and operators' requests for information, but because of their expertise, each became proactive in seeking tailored products and reports from national and theater intelligence agencies, using a "smart pull" concept to prevent becoming deluged with data of marginal utility to the mission at hand.⁶⁰

In a second cell, three Iraqi-American linguists scoured the Arab media for reports relevant to the JBB environs, translated documents recovered by ground patrols, and, perhaps most significantly, operated a 24/7 tip line—a phone service that Iraqi locals could call into from off base, where and when they felt most secure, to report on insurgents operating in their villages or attacking the air base from their property. Although uncorroborated, tip-line callers sometimes offered the first indications of impending attacks or the first attribution after the fact.⁶¹

The JISE's third component was an all-source fusion cell, where data from the collection effort was absorbed, combined, analyzed, and turned into knowledge about the enemy's capabilities and intentions. This fusion cell examined every small arms, IED, and IDF attack to determine which TTPs were new, which insurgent cell conducted an attack, what areas each cell operated in, and what activity patterns would enable air and ground forces to maneuver inside the enemy's decision cycle—that is, that holy grail of intelligence known as predictive battlespace awareness.⁶²

The final cell in the JISE was the direct liaison to the OTW Gryphon unit, the 532nd ESFS "Lions." These JISE members not only delivered the relevant analytic products meant to keep the Lions from being surprised in the battlespace; they armed each patrol with knowledge of the networks and their players, many of whom would be in regular, deliberate contact with the

Lions. This liaison cell gave many patrols specific essential elements of information to collect during their interactions with the local populace while identifying particular fields to sweep and to occupy, forcing the insurgents to fire from less-familiar territory with less-practiced escape routes. Robust ground intelligence operations enabled Army and Air Force ground forces to defend JBB through proactive deterrent patrols at the point of IDF origination.⁶³

The BSO leveraged this intelligence analysis and capacity in combination with his own intelligence staff. This synchronized effort supported an intelligence fusion designed to drive defense operations in the BSZ. Intelligence is traditionally based on the analyses of historical trends, which leads to a defense posture that responds after attacks occur. In this paradigm, ground forces are no more than “shot responders” in a counter-IDF fight, sweeping for the enemy in the location from which they fired the IDF round. This does produce short-term results but at a tremendous expenditure of energy and resources. To attain predictive battlespace awareness and lead to proactive operations, the JISE needed foreknowledge and the ability to shape operations based on predictions of the actions insurgents would likely take in the future.⁶⁴

The JISE enabled an intelligence-driven targeting process that allowed Air Force security forces to shift from a reactive posture to proactive operations. To obtain any lasting effects requires dominance of the human terrain within and outside an installation as well as understanding the relationships among key groups, tribes, and individuals. This requirement drove Airmen to study and gain insights into the violent extremist networks operating in the area and to actively participate in mapping and pressuring these networks through a constant presence. Airmen closed the intelligence gap between themselves and the enemy network by actively feeding the intelligence cycle as they gathered information from relationships they established in the battlespace.⁶⁵

Actively leveraging organic air assets directly enabled an enhanced base defense. Through the standard air tasking order and collection-management processes, the JISE obtained regular Global Hawk and Joint Surveillance Target Attack Radar System (JSTARS) geospatial products as well as nationally derived

intelligence products delivered through the combined air operations center's forward-deployed Air Force National Tactical Integration Cell. While useful, these planned intelligence, surveillance, and reconnaissance (ISR) assets were dwarfed by contributions of the expeditionary operations group and Army aviation units, both fixed and rotary wing, assigned to JBB, who delivered countless hours of "residual" ISR. The JISE produced and executed a comprehensive collection plan garnering the most value from both planned and residual airborne assets.⁶⁶

The JISE became a synergistic body effective at pulling together disparate units to reach a commonly desired end state: protecting JBB from IDF attacks. Pilots and air planners welcomed the opportunity to fly residual ISR to protect the base, utilizing any remaining fuel and loiter time after completing their primary mission. Members of the operations group intelligence cell logged hundreds of hours following insurgent leaders to meetings, and Army aviation units loitered at a distance, capturing imagery of insurgents' other patterns of life. The JISE orchestrated a collection plan, piecing together the returning aircraft into persistent ISR 15 to 60 minutes at a time—the average length of time that a residual asset could make itself available for local ISR efforts. The JISE collection coordinator produced a daily collection plan known as the "residual deck." For each target, the collection plan included specific elements of information meant to enable JISE analysts to fill gaps in their knowledge of the target, its activities, and insurgent networks.⁶⁷

Security forces Airmen proved critical to the success of the JISE's intelligence collection strategy. Given the nature of the Iraqi insurgency, successful ISR operations included ground-based collection by patrols coming into close contact with high-value individuals and the populace surrounding them. Like the airborne collection plan, the ground-based plan began by determining tasks suited to the Air Force patrols. In each neighborhood, Army and Air Force patrols conversed with locals to determine the identities of individuals with whom they were speaking, their occupations, and how they felt about topics such as their security situation and government services. By identifying the occupants of various houses and obtaining grid coordinates for each dwelling, patrols literally mapped the

human terrain surrounding JBB. JISE analysts recorded each individual, using the data to build a picture of the human terrain. While traditional intelligence sources enabled security forces to narrow down the location of a high-value individual within a block of five to ten houses, Airmen and Soldiers on the ground easily pinpointed the exact residence and its occupants simply by asking locals to provide information about the individual of interest.⁶⁸

Air-Ground Integration. Although not immediately obvious, the evolution of the residual air campaign demonstrates a need for effective linkages between ground and air forces. With a wide variety of aircraft platforms with variable operating times in the air, air-smart ground forces must understand the value of dominating the battle space in three dimensions and be able to leverage every capability provided—ranging from minutes to hours. With only one to three FPPs available in the BSZ at any given time covering 60,000 acres of battlespace, airpower is essential for countering the disadvantages that the terrain poses to ground forces.⁶⁹

The terrain itself also contributes to the complexity of the problem set. The terrain around JBB is in the vicinity of the Tigris River and consists of fertile agrarian lands by Iraqi standards. The rural communities and agriculture are fueled by intricate systems of canals that compartmentalize the battlespace with very few direct routes to anywhere. The surrounding area hosts an impressive variety of crops and vegetation that provide an endless number of hiding places and alternatives to insurgents seeking to attack US forces or JBB. Isolated fields and vineyards worked by commuter farmers offer a witness-free environment for determined insurgents. The confusing lattice of canal roads are designed to support smaller local traffic and farm stock, not armored combat patrols. With each hour of continuous rain, trafficable routes quickly become mired and impassable, making large chunks of the battlespace isolated and inaccessible. The disadvantages of this environment offer corresponding advantages to the adversary that can be countered by airpower.⁷⁰

It's not cliché to say squad leaders had to be taught to think on the fly. A variety of air assets with a host of uses, many platform-specific, required a unique form of education. Airmen

needed to understand the capabilities of available assets and how they contribute to the ground fight. Army aviation units taught Airmen their AGI TTPs for linkup and communication in the battlespace to direct rotary-wing assets for patrol oversight and route/objective reconnaissance. Over 300 Airmen were trained on MOVER⁷¹ use, giving them the ability to direct ISR assets and kinetic platforms and an unprecedented level of situational awareness. Such capabilities brought the C-IDF fight to new heights, enabling the transition from merely “POO responders” to hunters who could, in effect, track shooters to their doorsteps. As the USAF’s “air IQ” increased, its air-minded operations became preemptive in nature and allowed it to track and interdict munitions prior to final emplacement at the attack location.⁷²

The security environment, regardless of the operation’s current name, has transitioned from COIN to stability operations. Iraqi rule of law became an operational imperative. The requirement for prosecution-based targeting led to the primacy of ISR-based platforms with a persistent presence and collection capability crucial to building solid cases for convictions in an Iraqi court of law.⁷³

Battlespace Owner Integration. Joint and combined partnerships in today’s battlespace are very complex, and BSOs were responsible for synchronizing all friendly forces in their area of operations, which included conducting kinetic and non-kinetic actions, maintaining situational awareness of all forces, and controlling fire-support coordination measures. BSOs leveraged the capabilities of all coalition, host nation, and other partner units, including nonmilitary entities, such as the Department of State’s provincial reconstruction teams (PRT) and nongovernmental organizations (NGO). Their accomplishments proved that, if properly synchronized, such mutually supporting operations create a symbiotic relationship and unity of effort, ultimately yielding a more efficient use of resources. US Joint Forces Command noted that the BSOs were learning to take advantage of all available operational enablers: “Many joint players . . . operate in the battlespace owners’ areas of operation. . . . Battlespace owners are becoming increasingly more comfortable with these ‘non-assigned’ players in their battlespace.”⁷⁴

At JBB, Airmen learned to leverage both kinetic and non-kinetic assets and operations to support the BSO's COIN and stability campaign plans. The wing hosted biweekly COIN and civil-engagement synchronization meetings to integrate the various campaign plans from the Army BSO, Air Force, Department of State PRTs, and other NGO partners at JBB. The BSO embraced efforts from the Air Force and other partner units as a means of realizing overall campaign objectives along three lines of operations: security, economic development, and governance. No fewer than five times per week, the COIN engagement team met to improve coordination and information sharing. Those meetings included a review of intelligence operations, operations synchronization, targeting, the BSO's weekly effects summary, and numerous synchronization meetings at the field-grade and company-grade-officer levels. The meetings resulted in support such as ISR data on the locations of high-value individuals, sweeps over IDF hot spots, aerial monitoring of security for Iraqi election polls, and aerial shows of force with F-16s over terrain from which IDF attacks frequently originated.⁷⁵

The Threat—Vietnam-Iraq Comparison

In both Vietnam and Iraq, IDF weapons were the number one threat to air bases because attacks from a distance increased survival. Vietcong and North Vietnamese forces attacked 10 American air bases in Vietnam 475 times between 1964 and 1973, primarily with IDF, destroying 99 and damaging 1,170 US and South Vietnamese aircraft.⁷⁶ In contrast, JBB alone came under IDF attack more frequently than all 10 US air bases in Southeast Asia combined during a similar number of years (see fig. 6). Insurgents attacked JBB 1,965 times from 2004 to 2010 resulting in no aircraft losses and only a few aircraft damaged; furthermore, only 50 percent of the rounds fired actually landed on the base.⁷⁷

Both VC/NVA and Iraqi insurgents sought similar objectives—to inflict casualties, to undermine public support, and to disrupt air operations. These objectives were more definitively achieved in Vietnam than in Iraq because of the damage and the casualties that incurred, but both operations were successful in disrupting air operations.

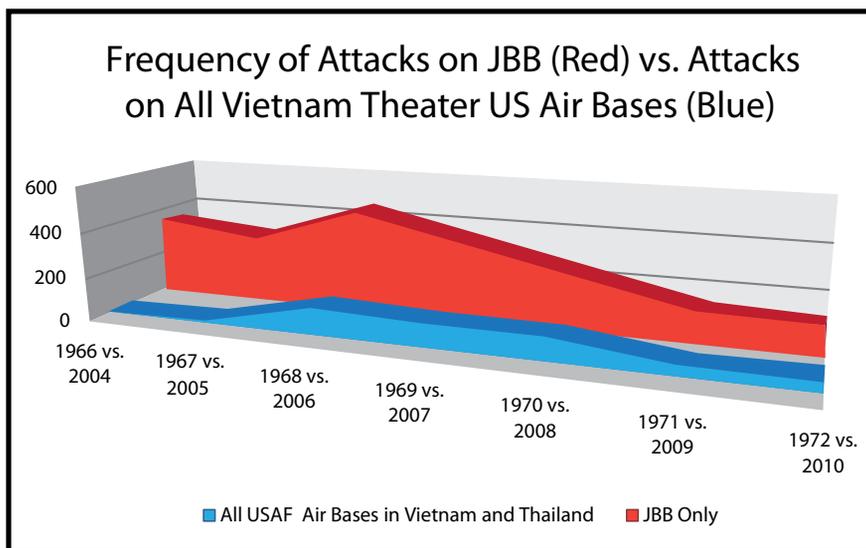


Figure 6. Attack comparison between JBB (2004–10) and Vietnam theater air bases (1966–72). (Vietnam data from Vick, *Snakes in the Eagle’s Nest*, 69; and JBB data derived from Urban, 10 February 2011 event database.)

The terrain for both conflicts favored the insurgents, and most attacks at JBB originated from lush farmland, trees, and vineyards surrounding the base. The proximity of populated villages and towns adjacent to the air base perimeters in both Vietnam and Iraq gave cover to the enemy to conduct his operations. Alan Vick noted in the 1995 RAND research study entitled *Snakes in the Eagle’s Nest* that “the standoff threat, particularly from rockets, proved troublesome through the end of the Vietnam War. Given the nature of the conflict and the terrain, there was no perfect counter-measure to this threat.”⁷⁸

There were also numerous differences: trained soldiers or insurgents in Vietnam were capable of hitting targets consistently, while at JBB it was a more diverse group, including well-trained former Baathists, disenfranchised tribes who formed militia, and unskilled attackers who simply fired on the base to make money. Because this group did not have specific training and incentive to destroy targets, over 50 percent of the IDF fired at JBB did not even land within the perimeter boundary.⁷⁹

While less frequent, the attacks in Vietnam were more effective at disabling and disrupting air operations. Between 1964 and 1973, Vietcong and NVA forces attacked the 10 bases only 475 times, but the attacks were much more intense and included multiple launches of IDF with over 250 attacks with five or more rounds, 164 attacks with 10 or more rounds, and eight attacks with 80 or more rounds fired.⁸⁰ Attack intensity was a major difference at JBB because the largest attack was only 16 rounds. Figures 7 and 8 describe the number of rounds fired per attack in both Vietnam and Iraq.

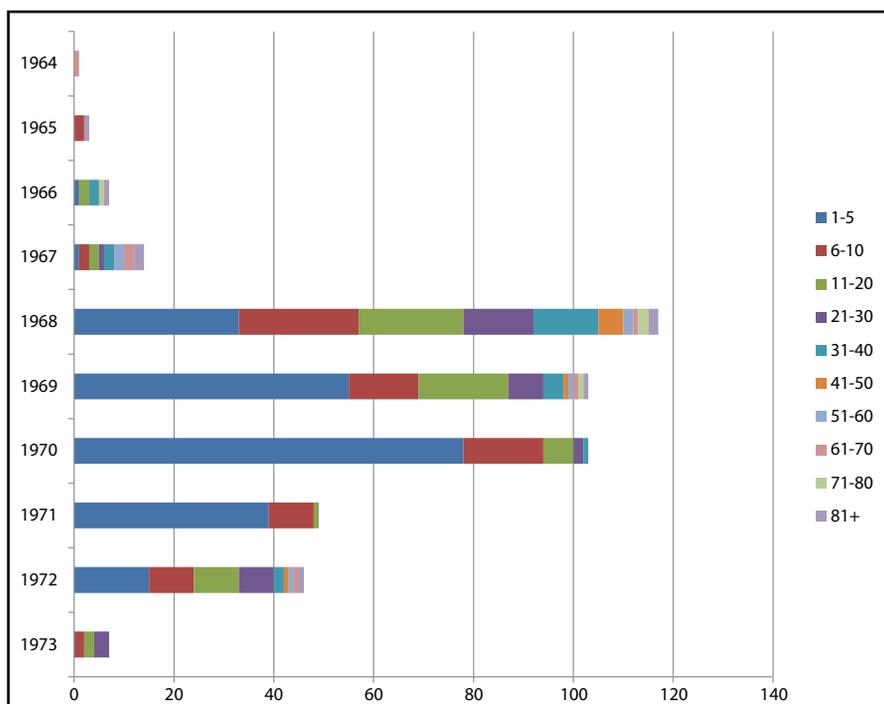


Figure 7. Number of rounds fired per attack in Vietnam

The difference was the effect of firing multiple rounds in one attack; in Vietnam they destroyed 99 US and South Vietnamese aircraft and damaged 1,170 aircraft along with multiple facilities, fuels, munitions, and so forth. Conversely, no aircraft were destroyed in all the attacks on JBB, and only a few were damaged,

with no major facilities damaged or destroyed.⁸¹ A major difference in JBB was better attack warning from counterfire systems.

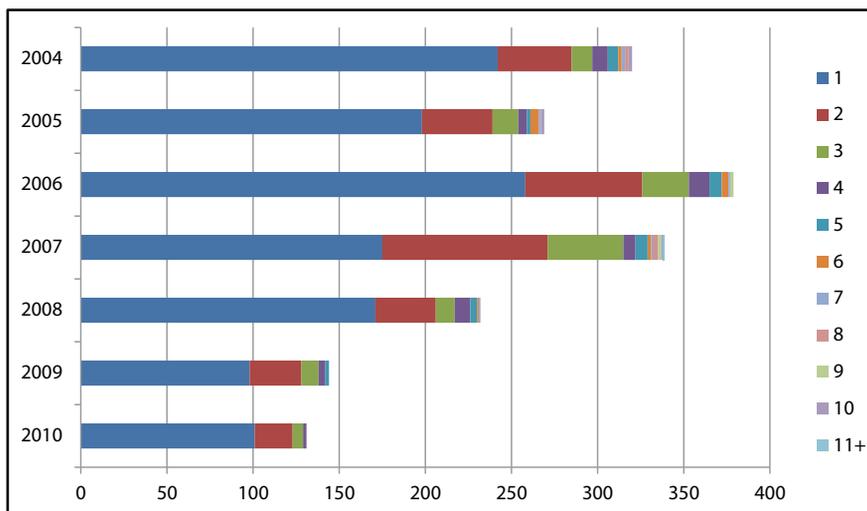


Figure 8. JBB attack data by rounds fired per attack

Vietnam-era base defense and base defense at JBB also differed significantly in terms of the complexity of attacks. Vietnam attacks proved more effective because enemy forces had more freedom of movement, enabling them to mass fires and conduct simultaneous ground attacks due to the inability of air base defenders to effectively patrol around their installations. Vietnam theater air bases endured not only IDF attacks but also 29 sapper attacks, during which forces attempted to penetrate the bases to destroy aircraft and key defenses.⁸² Eight of those attacks utilized IDF as a diversion for base defense forces, thereby screening attackers during ground assaults.⁸³ Unlike in Vietnam, sapper attacks did not materialize in Iraq because they are highly complex, synchronized operations requiring a more organized, disciplined, and trained military force.

Also unlike in Vietnam, the 2008 US-Iraq security agreement substantially altered the rules of engagement by making defense operations a “law enforcement fight.” This change obligated US forces to build criminal cases with supporting evidence.⁸⁴ The ROE limited options for defending the air base but bolstered the larger strategic effort to support Iraqi rule-of-law

programs. It also had the added benefit of making Iraqi police and courts the centerpieces of long-term Iraqi success. By requiring the Iraqi police to handle all cases against alleged insurgents and process them through their court system, the ROE promoted a more-favorable image of US Airmen, casting them as partners in upholding the Iraqi rule of law and dispelling the image of an occupying force disrespectful of local authority. As such, Soldiers, Air Force security forces, Airmen with the AFOSI, and pilots from both services testified in Iraqi courts, resulting in successful criminal prosecutions under Iraqi law.⁸⁵

Commenting on the US-Iraq security agreement of 2008, MG Mike Milano, USA, pointed out that “what we and the Iraqis are striving for is a condition known as police primacy. . . . Under police primacy, the Iraqi police forces have primary responsibility for internal security, under civilian control, in accordance with the Iraqi constitution and consistent with the rule of law.”⁸⁶ JBB, therefore, initiated further cooperative partnering with the Iraqi police and built a local police substation to further improve cooperation. US Soldiers and Airmen worked alongside Iraqi police, often conducting joint and combined patrols and operations and, with local support, improved intelligence.

Integrated defense operations in Iraq forced insurgents to hurry their attacks because of new technologies that eliminated most of the tactical loiter time needed to amass their fires. Attackers feared being either targeted by ground patrols or videotaped by air platforms.⁸⁷ Good security at JBB’s entry control points and perimeter drove the enemy to IDF attacks to minimize losses. Indirect fire attacks successfully disrupted US operations temporarily, as each attack required personnel at the installation to take cover and clear the terrain of unexploded ordnance prior to returning to normal operations. JBB’s counter-IDF strategy focused on deterring and disrupting attacks to prevent the enemy from mounting attacks and improving accuracy for maximum effect. As a result, enemy IDF attacks were short in duration, performed hurriedly, and inaccurate from unprepared firing positions with far fewer casualties and material damage.

Deterring Attacks on Joint Base Balad— Quantitative Analyses

The concept of deterrence against irregular criminals and terrorists was first developed in the Western Hemisphere for the prosecution of conflicts against drug traffickers and insurgents.⁸⁸ For example, with deterrence analyses in place, US interdiction coordinator ADM Robert Kramek convinced President Clinton to approve the use of lethal force against drug-trafficking aircraft flying from Peru to Colombia in 1995.⁸⁹ Interviews with drug traffickers determined several key factors in their willingness to conduct trafficking operations in the face of countertrafficking operations. The fraction of effectiveness (P) of shooting down trafficker aircraft was observed to be proportional to the interdiction (I) rate below a critical threshold, but above the critical threshold (2 to 4 percent lethal effectiveness) to be inversely proportional to the interdiction rate: $P(I) \approx I^{-1}$. The key is to find the critical threshold from incomplete data. The condition for deterring attackers can be demonstrated by a power law that is inversely proportional to the tactics and actions taken by AF security. In *deterring* attacks on Joint Base Balad by insurgents, intervals between attacks should increase at a rate that is inversely proportional to a power law with a -1 exponent. The analyses research question is *Did the defense of Joint Base Balad demonstrate a successful deterrence of insurgent attacks?*

Data Analyses

Raw operational data was obtained from the 332nd ESFG/JISE and contained about 3,000 records (of which about 3 percent were false alarms), and most attacks were conducted using IDF weapons, principally mortars and rockets. The broad characteristics of the data showed that the preponderance of attacks were single, lower risk attacks with a few higher risk multiple, coordinated attacks. While the tactics and operational concepts will be discussed elsewhere in this study, this analysis examines what can be learned from quantitative techniques consistent with this data. The attack data begins in May 2004 and ends in early 2011.

Figure 9 shows the median monthly attacks on Joint Base Balad and the increasing intervals between insurgent attacks. There are

five operational periods distinguishable in the data, and these periods are consistent with the following attack phases:

1. Initial attacks against a newly established base
2. Insurgent reinforcement, below the critical threshold, and undeterred behavior
3. Beginnings of effective defensive operations above threshold for deterrence
4. Continuation of deterrence phase against the insurgents
5. Consolidation phase, initiative achieved, deterrence increases effectiveness

The bottom half of figure 9 shows the raw attack interval data (dots), which is a linear, increasing-interval median trend line of about fourfold improvement, and a 60-day median⁹⁰ moving average indicator. Arithmetic averages are very unstable and lead to erroneous conclusions, as will be discussed at the end of this section—a limitation of power law distributions.

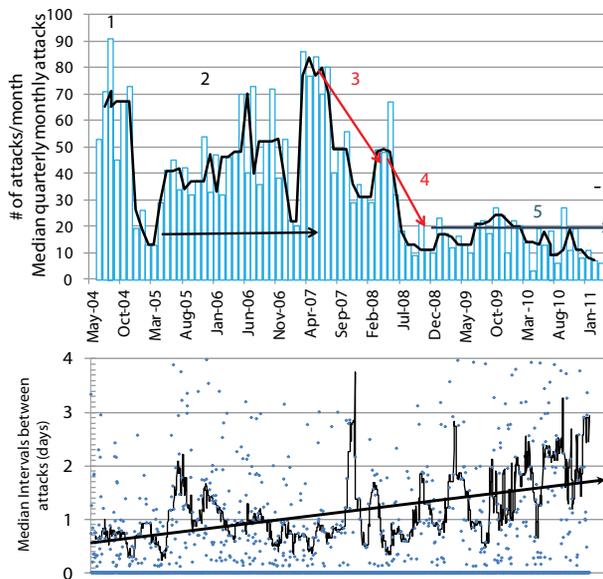


Figure 9. Median monthly attacks and attack intervals on Joint Base Balad

Examining the Effectiveness of Deterring Attacks on Joint Base Balad

The first factor for assessing insurgent effectiveness in attacking the base consists of declining attacks. There is a second factor; the number and intervals of attacks because of the decreasing accuracy of attacks. Because the effectiveness of “area” weapons to cause damage scales as the square of the miss distance, doubling the miss distance decreases damage by about 75 percent. Because the warning system was able to estimate miss distance, this data was available.

Figure 10 shows the same operational periods and captures the increasing miss distance as the insurgents are more and more deterred.

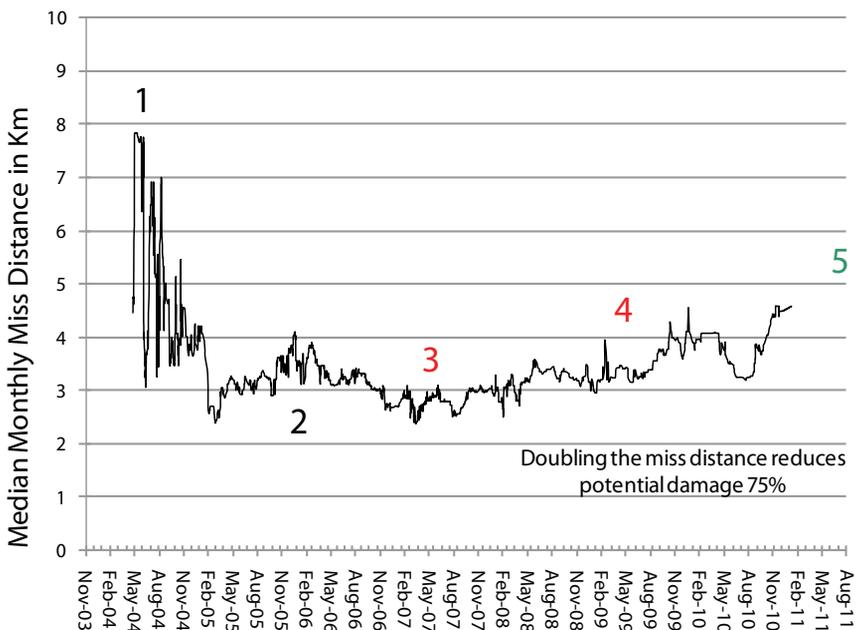


Figure 10. Increasing insurgent miss distance as captured by the warning system

The last phase of our analysis examines the power law behavior of the intervals between attacks. Larger and larger times between indirect attacks are evidence of deterrence. If the exponent is about -1, then the enemy is deterred. Computational

difficulties arise from -1 slopes of power laws since the average of a sample can be calculated but *does not represent any good measure of the average of the true situation*.⁹¹ Very large, seemingly random variations of the average metrics cast great doubt on them as useful indicators.

In these analyses, all of the conditions necessary to demonstrate deterrence were present. The evidence of deterred attacks after mid 2007 suggests that the increase in kinetic operations during the 2007 surge initially deterred the insurgents, but they quickly adapted their methodology to the new environment, and attacks were on the rise upon deployment of the 332nd ESFG. Evidence suggests that a near-optimum strategy was employed by AF security forces that made insurgents alter their behaviors significantly and reversed the trend of insurgent activity. In operational terms, SFs gained the initiative against insurgents using force-multiplier deterrence techniques to enhance their effectiveness and reduce overall costs of defense.

Analytical Difficulties in Analyzing the Joint Base Balad Defense

AF security forces used standard analysis techniques to evaluate the data they gathered on attacks and the effectiveness of attacks. These standard techniques included averaging events each month to try to understand what was effective. Standard analyses did not yield a clear picture of the attack situation because the convergence of small samples means is not a guaranteed or even good indicator of success. Means, or averages, significantly overestimate enemy capabilities, and they do so in a random and unpredictable way. Analytical problems of this type were first pointed out involving the drug war in 1997, where the conditions for convergence, the Pareto-Levy conditions, were used to understand these analytical difficulties.⁹²

In this paper, analyses of events, intervals of attacks, and miss distances were all performed using medians because the median always converges for *unknown* distributions. In the JBB analysis, intervals of attack events demonstrate power law exponent of -1 in figure 11, and that suggests that averages do not converge.⁹³ While monthly averages can be computed in

the SF standard analyses, these averages have little accuracy in evaluating effectiveness. Using standard analysis techniques took much longer to assess effectiveness of the ID strategy, where the median result is much more obvious. Figure 12 compares the median result and the errors occurring if an average is used. Average errors are very large (-30 percent to 150 percent) and grow larger as the data samples become smaller as success is occurring. The fluctuations are observed to be random and solely dependent on the random sequence of the attacks. Such behaviors hide the true situation, and these problems are fundamental to making assessments of irregular conflicts.

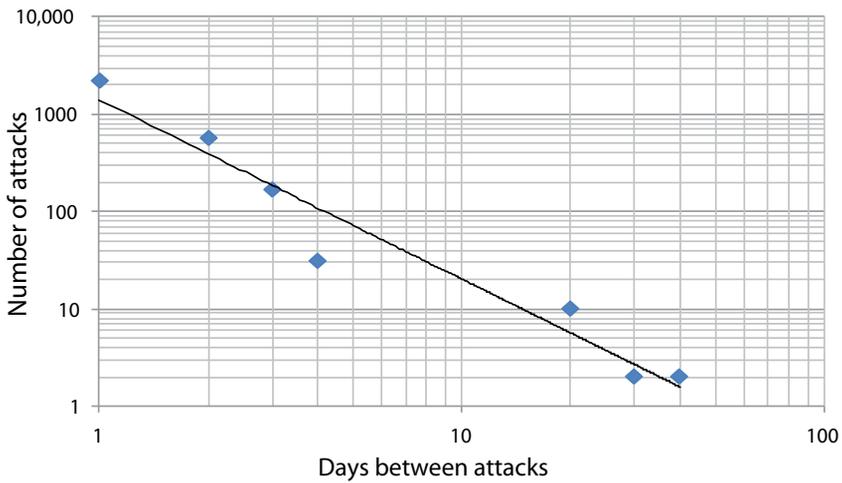


Figure 11. Power law (number=450*[days]^{-1.087}) of deterred attack intervals

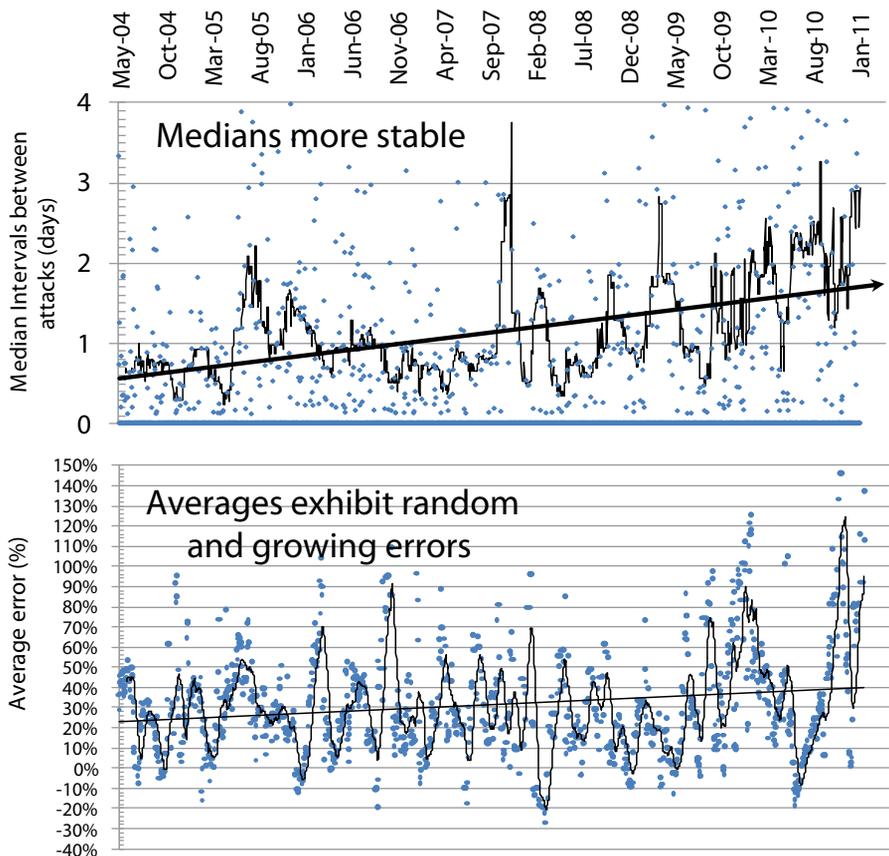


Figure 12. Medians give stable attack interval trends and averages give increasing errors of attack intervals (bottom figure)

Lessons Learned

To evaluate the many lessons learned in conducting the C-IDF and C-IED missions at JBB, numerous interviews were conducted with key leaders, the after action reports of the units on the ground from the various services lessons learned databases were reviewed and cross-referenced with lessons learned in historical documents from Vietnam and earlier conflicts. Lessons learned fell into three primary areas: training, joint or command lines, and equipment. They are presented in this chapter in an observation and recommendation format to provide a summary

forum as seen from the personnel who were on the ground at the time of the operations. Since the most critical of the lessons learned came from training, they are listed first.

Training

Observation. Integrated defense has not been sufficiently taught and adopted throughout the USAF. This impacts the willingness of AF leaders to accept the inclusiveness of all Airmen in the defense of an air base and to go OTW to project the base security zone into the enemy's threat rings. No Airmen outside of security forces at JBB had any defense responsibilities, even if it was their own compound or sector, and there was resistance to taking on security responsibilities within all other organizations on the base. If ID is to be truly transformational, all Airmen must play a role, even if only a secondary support role.

Recommendation. Educate Air Force leaders at all levels on the integrated defense construct, and ensure all Airmen have a clearly articulated role in defending a portion of the base from penetration, sabotage, or direct attack. The Air Force must live up to the ID directive's intent that "every Airman shall receive initial and recurring combat skills training geared toward defending themselves and integrating into defense operations while garrison and deployed."⁹⁴ This is not a call to transform Airmen into infantrymen, but rather to train them to the level where they can defend themselves if required.

Observation. Predeployment and home station training limitations hamper the combat capability of security forces and increase risk in the expeditionary environment. Predeployment communications, BSO integration, current technology utilization/integration, and COIN integration training for SF personnel were inadequate. Specifically, regional training centers (RTC) trained different personnel on blue force tracker separate from radios, even though operationally it was standard operating procedure (SOP) to have the same person operating BFT and radios. All personnel had a basic knowledge of how to operate the radios but not how to setup or configure them. The RTC did not train personnel on any "non-AF" systems (e.g., the RT-1523E or ASIP radio), which accounted for the majority of systems operated in the AOR. Additionally, security forces did not train

leaders on the concept of a BSO or how to integrate and synchronize ground combat operations with the BSO. Today's SF leader training continues to use paper maps, grease pencils, and standard telephones rather than the requisite battlefield technology (i.e., BFT, aerial video feeds, Army standard CONOPS, etc.). Additionally, the training does not cover COIN principles, joint concepts of operations, or the intelligence-driven targeting needed to be effective in today's joint ID operation.

Recommendation. Modernize SF courses to include the latest technology, and ensure trainers include coordination with the ground BSO and combined partners as part of the practical exercise scenarios and examinations so that security force leaders will understand how the BSO operates in support of the theater commander's objectives.

Observation. The different predeployment training standards for security forces Airmen limit the flexibility of commanders in-theatre. For example, 332nd ESFS had 199 SF personnel dedicated to base security operations who were prohibited from deploying OTW because they did not attend the 45-day air security operations (ASO) training course. Likewise, security forces personnel tasked to conduct tactical security element (TSE) missions and fly-away security missions also attend specialized training. A consequence of leveraging specific training for specific mission sets is that the USAF cannot provide full-spectrum support to installation commanders, thereby limiting defense force commanders' capability and losing credibility with joint component commanders.

Recommendation. All deploying SF members should be trained to one standard and be capable of supporting the mission regardless of location.

Observation. Currently, there are three separate training and certification programs for fly-away security (Raven, DAGR, and FAST). Often, the type of training is major command (MAJCOM)-specific, although the security forces fly on the same aircraft.

Recommendation. Create one standard for fly-away security elements, regardless of the MAJCOM, and only include unique training requirements not already part of the SF training plan.

Observation. Most intelligence personnel assigned to the JISE have little to no ground combat intelligence training. This is a repeat observation from Vietnam.

Recommendation. Send all intelligence personnel deploying to a JISE position through FP intelligence formal training unit prior to deployment.

Observation. Airmen deploying to Iraq or Afghanistan noted the utility of the Combat Lifesaver (CLS) course.

Recommendation. The CLS course prepares participants for medical emergencies under stressful combat conditions and should be strongly considered for all Airmen likely to face ground combat.

Observation. Air Force Doctrine Document 2-3, *Irregular Warfare*, addresses COIN from an aircraft-centric perspective and fails to consider the need to synchronize nonkinetic COIN activities within a ground COIN campaign plan. SF nonkinetic COIN efforts range from a combat patrol conducting key leader engagements with local security forces to providing emergency medical treatment at base entry control points.

Recommendation. Develop doctrine to bring the Air Force in line with joint service guidance on COIN and stability operations, including aspects of nonkinetic activities. In addition, develop and cultivate training courses at multiple levels for wing, group, squadron, and tactical elements to instill the understanding that decisions at each level can have significant effects across the battlespace. Training will also provide greater understanding and synchronization with a BSO's campaign plan, as well as information operations messaging.

Observation. Nearly half of the MWD handlers did not know lifesaving steps for the dogs.

Recommendation. Include MWD lifesaver in predeployment training for all handlers.

Observation. Medical support played a major role in civil affairs/counterinsurgency operations. Typically, Air Force medics providing medical care to Iraqi civilians were not trained to operate OTW as a fire team member.

Recommendation. If this type of operation is repeated, aggressive and early coordination with the medical community will be needed to gain support for OTW missions.

Observation. The current Air Force lessons learned feedback loop ensures that all RTCs have the most up-to-date tactics, techniques, and procedures.

Recommendation. The Air Force Lessons Learned Center and Air Force Security Forces Center must set up active or recurring protocols for amassing and applying lessons learned from current operations and rapidly disseminate and implement them across the SF career field and regional training centers. Training must be readily adaptive to new technology and battlefield realities. This process proved effective with the Air Education and Training Command (AETC) Basic Combat Convoy Course.

Joint or Command Lines

Observation. Organizing for the mission by combining functional communities in an expeditionary integrated base defense group provides unity of command and is crucial to effective ID in the theater of operations. This is a repeat observation from Vietnam. Specifically, teaming installation force protection contributors and integrating with joint, combined, host nation, and interagency partners build synergy and result in seamless security for the installation. In addition, C-RAMs proved to be highly effective against IDF threats, as they provided the ability to warn personnel of incoming threats. The system provided a localized warning to populated areas of the base within a 1,000-foot diameter of the projected point of impact (POI). The localized warning allowed areas outside the POI to continued operations unimpeded.

Recommendation. Implement and solidify the use of all base defense assets under the DFC into integrated defense doctrine. This will ensure the best possible integration of all capabilities into the overall physical security and force protection architecture of the base.

Observation. The 332nd ESFG employed the JISE, a robust organic intelligence capability led and staffed by Air Force ISR professionals and contractors. The JISE enabled the BSO and Air Force ground forces to defend JBB through proactive, deterrent patrols to counter IDF attacks.

Recommendation. The Air Force must codify the JISE construct into the integrated base defense doctrine and organizational structures to provide the same type of successful intelligence capability during any deployed base defense operation.

Observation. Incorporating dedicated, organic remotely piloted vehicles and residual air assets into ID operations proved to be key to the 332nd ESFG combat effectiveness.

Recommendation. Rewrite Air Force doctrine with respect to integrated defense operations to bridge the natural fault lines between air and ground operations in joint or combined operations. These roles include, but are not limited to, air integration in support of base defense/counter-IDF and intelligence-driven operations.

Equipment

Observation. Many of the systems and equipment operated in the ground combat mission set are Army systems. This means parts in the supply system are not coded for AF procurement. Examples of equipment not available for AF procurement in the supply system are FBCB2/BFT and all associated parts, VIC-3 intercom (standard for HMMWVs in AOR), jamming systems, and so forth.

Recommendation. For systems and equipment consistently used by AF ground combat units, make the necessary parts available in the supply system for AF procurement.

Observation. Air Force tactical vehicles lacked appropriate government furnished equipment (GFE), objective gunner protection kit-turret (OGPK-turret), and gunner restraint systems (GRS), which resulted in mission delays/stoppage for OTW operations. Neither M-1116s nor mine-resistant ambush protected (MRAP) vehicles arrived equipped with the proper communications equipment. Additionally, neither vehicle (M-1116 nor MRAP) arrived with a Rhino device. A lack of properly equipped tactical vehicles is a repeat observation from Vietnam.

Recommendation. Identify OTW vehicle requirements through Army Central or applicable land component commander prior to establishment of an OTW mission.

Observation. Communications equipment must be compatible within the AF and with sister services. Specifically, the AF utilized VHF land mobile radios (LMR), while the Army utilized UHF LMRs; neither is compatible with the other. Units with parallel or similar mission sets (flight-line security forces and law enforcement/provost marshal) had different radios, so they

could not communicate directly if responding to the same incident. This is a repeat observation from Vietnam and most operations since Vietnam.

Recommendation. Move to a single frequency range for LMRs in the AOR for all services or install a cross-band capability to enable VHF LMRs to talk to UHF LMRs and vice-versa. Ensure that all radios operate using the same cryptographic encoding to ensure compatibility.

Observation. PRC-152 radios operating in single-channel ground and airborne radio systems (VHF), line-of-sight mode work incredibly well. The capability to preprogram channels on multiple net-IDs and the ease of programming and configuring the radios were great benefits. PRC-148 radios are fine if only one net-ID is being used (extremely rare); however, they are cumbersome to reprogram on the run while wearing full battle attire.

Recommendation. Push to replace PRC-148 radios with PRC-152s for AFCENT SF personnel. Maintain PRC-117 man-pack radios for long-range communications during dismounted operations.

Observation. Radio headsets are needed for dismounted operations. Headsets were provided by AFCENT for vehicle radio and intercom systems but were not compatible with the personal radios (PRC-148, PRC-152) used during dismounted operations. Giving operators the capability to communicate via radio with air assets (e.g., helicopters, close air support) and inter- and intra-squads without having to leave the shooting position to key up or speak into the radio increases their tactical advantage on the ground.

Recommendation. Identify and field a standard headset for mounted and dismounted operations (plug-and-play).

Observation. Not enough emphasis is placed on intercom systems. Currently, several intercom systems are being used in the AOR, and none operate the same. VIC-3 is more of an Army standard, but they are moving to TOCNET. TOCNET and VIC-3 are combined in the AF-standard MRAP. The Harris intercom system is installed in some AF HMMWVs. RTCs and home units train on multiple radio systems but not on intercom systems. The majority of the radio frequency communications challenges centered on intercom issues (often a training issue).

Recommendation. Establish a standard intercom system for each type of vehicle. Ensure that all personnel (not just re-training organizations) get adequate training on each specific system.

Observation. The Navy electronic warfare officer (EWO) request for forces position went unfilled in September 2009, creating a critical void in operational capabilities. The 532nd ESFS filled and trained the unsourced EWO request with an SF Airman in the squadron to ensure mission continuance, but at a reduced capability. The counter-radio-controlled electronic warfare (CREW) improvised explosive device systems require daily maintenance, and operators require continuous training. Due to a lack of formalized training, Airmen assigned to EWO duties were largely self-taught and relied heavily on OJT from Army EWOs on JBB (who received extensive training prior to deployment) to meet the job's demanding requirements.

Recommendation. Air Force security forces LOGDET planners must ensure deployable SF units. Units performing OTW operations provide a fully trained EWO to ensure Air Force personnel maximum protection from IED threats.

Conclusion—Future Implications

Competing priorities of ground commanders made committing Air Force ground combat capability to protect US air bases an operational necessity. The joint partners at JBB fully integrated their limited base defense assets to meet the adversary and limit any defensive seams insurgents might exploit. They did so through multiple levels of information sharing that gave base defenders a common operating picture through shared intelligence.

Air Force leaders should learn the important lessons from the JBB defense model, since asymmetric threats to air operations likely will increase in the future. The 1995 RAND study on air base defense predicted that

[air base] opponents might pursue three different objectives with these [future] attacks: (1) destroy high-value assets critical to USAF operations, (2) temporarily suppress sortie generation at a critical moment in a crisis or conflict, or (3) create a “strategic event”—an incident as decisive politically as loss of a major battle is military or operationally—that could reduce US public and/or leadership support for the ongoing military operation.⁹⁵

The lessons learned in defending Joint Base Balad have highlighted capabilities and integrated defense strengths that the US Air Force can contribute to defend against asymmetric threats. The Air Force must continue to refine its ID approach, train leaders who understand and embrace the ground BSO concept, and develop leaders who can readily participate in joint operations in COIN and stability-operation environments. The Air Force must codify the operational lessons of JBB's integrated defense into organizational and operational constructs that it can apply to current and future base defense operations.

The JBB defense model has proven that the USAF can ensure its place on the battlefield as a true joint and combined partner by defending not only its own air assets and war fighters but also those of the joint team. The USAF's commitment to the force protection of JBB has proven critical in deterring insurgents and diminishing the effects of indirect fire on air operations. By sending Airmen out to meet the enemy on the ground and in the air, the Air Force has enjoyed greater security and freedom of movement to support its own air operations and BOS-I base defense responsibilities.

At JBB, Air Force leaders at all levels embraced the ID concept and searched for ways to support the BSO's COIN campaign plan because it paid dividends to the installation's defense, ensuring the conduct of air operations in a more secure and stable environment. The outcome of this operation speaks volumes about what the USAF can achieve with its joint and combined partners when it is effectively integrated and positioned to bring its integrated defense capabilities to bear in support of the joint fight. Base defense experiences in Iraq demand a fresh look at the role the Air Force plays in defending its assets as well as those of the joint force.

Notes

1. AFDD 1, *Air Force Basic Doctrine*, 17 November 2003, http://www.dtic.mil/doctrine/jel/service_pubs/afdd1.pdf.

2. Opponents engage each other in fixed formations, as in defending a well-defined location.

3. Cyril B. Falls, *The First World War* (London: Longmans, 1960), xvii-xviii.

4. CWO Howard D. Williams, "Basic Military Training in the AAF, 1939–1944," Army Air Force History Study 49 (Washington: AAF History Office, 1946), 2.
5. Roger P. Fox, *Air Base Defense in the Republic of Vietnam, 1961–1973* (Washington: Office of Air Force History, 1979), 3.
6. Winston S. Churchill, *The Second World War*, Vol. 3: *The Great Alliance* (Boston: Houghton Mifflin Company, 1950), 776–77.
7. Alan J. Vick, *Snakes in the Eagle's Nest: A History of Ground Attacks on Air Bases* (Santa Monica, CA: RAND, 1995), 16, http://www.rand.org/pubs/monograph_reports/MR553/.
8. Ibid.
9. Fox, *Air Base Defense*, 7.
10. "Army/Air Force Agreement," *Agreements as to the Initial Implementation of the National Security Act of 1947* (15 September 1947), 36.
11. WDTM 20-205, *Dictionary of United States Army Terms*, 18 January 1944.
12. Joint Army Air Force Bulletin 13, *Functions of the Armed Forces and the Joint Chiefs of Staff*, 13 May 1948.
13. AFP 5-1-1, *Dictionary of United States Military Terms for Joint Usage*, June 1950.
14. Joint Army Air Force Bulletin 13.
15. Ibid.
16. Fox, *Air Base Defense*, 4.
17. Air Force Regulation (AFR) 355-4, *Local Ground Defense of Air Force Installations*, 3 March 1953.
18. Fox, *Air Base Defense*, 6.
19. Ibid.
20. "Estimate of the Capabilities of Subversive Elements to Deter or Obstruct, by Ground Action, the Accomplishment of the USAF Mission," OSI, 20 April 1956; and "Estimate of Soviet Capabilities to Carry out Guerrilla-Type Ground Tactics against USAF Installations in the ZI, NEAC, and AAC," Director of Intelligence, 25 September 1956.
21. "The U.S. Army Provost Marshal, Local Ground Defense of Air Bases," Staff Study, May 1957, 11.
22. Fox, *Air Base Defense*, 12.
23. An exception late in the Vietnam War was the provision of C-47 mini-gunships assigned to numerous bases to provide fire support outside the base.
24. Vick, *Snakes in the Eagle's Nest*, 16.
25. Package BLUE XOS_F.041118.1, "Validating the Abrogation of Joint Service Agreement 8," HQ USAF.
26. "Joint Air Base Ground Defense Working Group Minutes," January 1990.
27. Brig Gen Robert H. "Bob" Holmes et al., "The Air Force's New Ground War: Ensuring Projection of Air and Space Power through Expeditionary Operations," *Air and Space Power Journal* 20, no. 3 (Fall 2006): 51, <http://www.airpower.af.mil/airchronicles/apj/apj06/fal06/Fal06.pdf>.
28. AFPD 31-1, *Integrated Defense*.
29. Col David C. Ptak et al., "Lessons Learned: Integrated Defense at Joint Base Balad," July 2010 (unpublished as of 1 June 2011), 1.

30. Ibid., 5–6.
31. Ibid., 5.
32. Ibid., 24.
33. Ibid.
34. Ibid.
35. Ibid., 24–25.
36. Ibid., 25.
37. Ibid., 26.
38. Ibid., 27.
39. Ibid., 29.
40. Ibid.
41. Ibid., 31.
42. Ibid.
43. Ibid.
44. Ibid., 32.
45. Ibid.
46. Ibid., 33–34.
47. Ibid., 38.
48. Ibid., 39.
49. Ibid., 40.
50. Ibid., 41.
51. Ibid., 42.
52. Ibid., 45.
53. Ibid.
54. Ibid., 45–46.
55. Ibid., 19.
56. Lt Col Shannon W. Caudill et al., “Defending the Joint Force: Lessons Learned from Joint Base Balad,” *Air and Space Power Journal* 25, no.1 (Spring 2011): 97, http://www.airpower.maxwell.af.mil/airchronicles/apj/2011/2011-1/2011_1.pdf.
57. Ibid.
58. Ptak et al, *Lessons Learned*, 14.
59. Ibid., 8.
60. Ibid.
61. Ibid.
62. Ibid.
63. Ibid., 8–9.
64. Caudill et al., “Defending the Joint Force,” 93.
65. Ibid.
66. Ibid., 94.
67. Ibid.
68. Ibid.
69. Ptak et al, *Lessons Learned*, 17.
70. Ibid.
71. *MOVER* is a generic system name referring to integration of ISR and forces (e.g., PRIME MOVER, PAVE MOVER, etc.)
72. Ptak et al, *Lessons Learned*, 17.

73. Ibid.
74. Ibid., 18.
75. Ibid.
76. Fox, *Air Base Defense*.
77. Maj William Urban, 332nd Expeditionary Security Forces Group, Joint Intelligence Support Element, 10 February 2011—current database of attack events.
78. Vick, *Snakes in the Eagle's Nest*, 16.
79. Col Anthony M. Packard (332nd ESFG, JISE), interview by author, 10 January 2011.
80. Fox, *Air Base Defense*, appendix.
81. Urban, 10 February 2011 event database.
82. Vick, *Snakes in the Eagle's Nest*, 90.
83. Ibid.
84. "Agreement between the United States of America and the Republic of Iraq on the Withdrawal of United States Forces from Iraq and the Organization of their Activities during their Temporary Presence in Iraq," 17 November 2008 (made official on 14 December 2008), http://iraq.usembassy.gov/media/2010-irc-pdfs/us-iraq_security_agreement_ena.pdf.
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87. Packard, interview.
88. Barry Crane, *Deterrence Effects of Operation Frontier Shield*, Institute for Defense Analyses (IDA) Paper P-3460 (Alexandria, VA: IDA, 1999).
89. R. Anthony, "A Calibrated Model of the Psychology of Deterrence," *UNODC Bulletin on Narcotics, Illicit Drug Markets* 61, nos. 1-2 (2004): 49.
90. Only a median is advisable as a stable indicator; similar averages were very unpredictable with large increasing fluctuations from -20 percent to as much as 130 percent. These fluctuations were not related to event changes.
91. The validity of a sample average when exponent increase is near -1 to a true average does not meet the convergence test for sums and higher statistical moments of the central limit theorem. In our analyses, medians converge and are used as stable indicators.
92. Barry Crane and A. R. Rivolo, *An Empirical Examination of Counterdrug Interdiction Program Effectiveness*, IDA Paper P-3219 (Alexandria, VA: Institute for Defense Analyses, January 1997), II-6-9, fig. II-4, describes the Pareto-Levy tails of power law distributions.
93. If the power law is -2, then standard deviations and variances also do not converge, and standard regression theory fails.
94. AFPD 31-1, *Integrated Defense*.
95. Vick, *Snakes in the Eagles Nest*.

Abbreviations

AB/LSA	air base/logistics support area
AETC	Air Education and Training Command
AF	Air Force
AFCENT	United States Air Forces Central Command
AFOSI	Air Force Office of Special Investigations
AFPD	Air Force policy directive
AFR	Air Force regulation
AFTTP	Air Force tactics, techniques, and procedures
AGI	advanced geospatial intelligence
AOR	area of responsibility
ARVN	Army of the Republic of Vietnam
ASO	air security operations
BATS	biometrics automated toolset
BEAST	Balad Expeditionary Antiterrorism Strike Team
BFT	blue force tracker
BOS-I	base operating support-integrator
BSO	battlespace owner; base security operations
BSZ	base security zone
CCTV	closed-circuit television
CENTCOM	US Central Command
CF	coalition forces
C-IDF	counter-indirect fire
C-IED	counter-improvised explosive device
CLS	Combat Lifesaver course
COIN	counterinsurgency
CONOPS	concept of operations
C-RAM	counter-rocket artillery mortar
CTO	counterterrorist operations
DAGR	defense advanced GPS receiver
DFC	defense forces commander
ECP	entry control point
EO/IR	electro-optical/infrared
EPS	elevated persistence surveillance
ESFG	Expeditionary Security Forces Group

ESFS	Expeditionary Security Forces Squadron
eTASS	enhanced tactical automated security system
EWO	electronic warfare officer
FAST	fly-away security team
FEAF	Far East Air Forces
FP	force protection
FPP/OIC	force protection patrol officer in charge
GFE	government furnished equipment
GRS	gunner restraint systems
HAF/A7S	Headquarters Air Force/Force Protection
HUMINT	human intelligence
HWI	health and welfare inspections
IA/IP	Iraqi army/Iraqi police
ID	integrated defense
IDF	indirect fire
IED	improvised explosive device
IRF	internal response forces
ISR	intelligence, surveillance, and reconnaissance
ITW	inside the wire
IVPS	Iraqi vehicle & pedestrian screener
JBB	Joint Base Balad
JCS	Joint Chiefs of Staff
JDOC	joint defense operations center
JFC	joint forces commander
JIB	joint intercept battery
JISE	joint intelligence support element
JISE-B	Joint Intelligence Support Element–Balad
JSA	joint service agreement
LMR	land mobile radio
LN	local national
LOGDET	logistics detail
MAJCOM	major command
MOB	main operating base
MPC	mission planning cell
MRAP	mine-resistant, ambush-protected
MVACIS	mobile vehicle and cargo inspection system
MWD	military working dog

MWR	morale, welfare, and recreation
NCOIC	noncommissioned officer in charge
NGO	nongovernmental organization
OGPK	objective gunner protection kit
OIC	officer in charge
OTW	outside the wire
OSI	Office of Special Investigations
PIR	priority intelligence requirements
PL	patrol leader
POI	point of impact
PSC	private security contract
RAF	Royal Air Force
RAID	rapid aerostat initial deployment
RDIM	ruggedized detection imaging module
ROE	rules of engagement
RTC	regional training center
RVACIS	rail vehicle and cargo inspection system
SAC	Strategic Air Command
SF	security forces
SVIED	suicide vest improvised explosive device
TACON	tactical control
TCN	third country national
TOCNET	tactical operations center intercommunica- tions system
TSE	tactical security element
TTP	tactics, techniques, and procedures
USAF	United States Air Force
VBIED	vehicle-borne improvised explosive device
VC/NVA	Vietcong/North Vietnamese Army
ZBV	Z-backscatter van

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Integrated Defense

Lessons Learned from Joint Base Balad

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